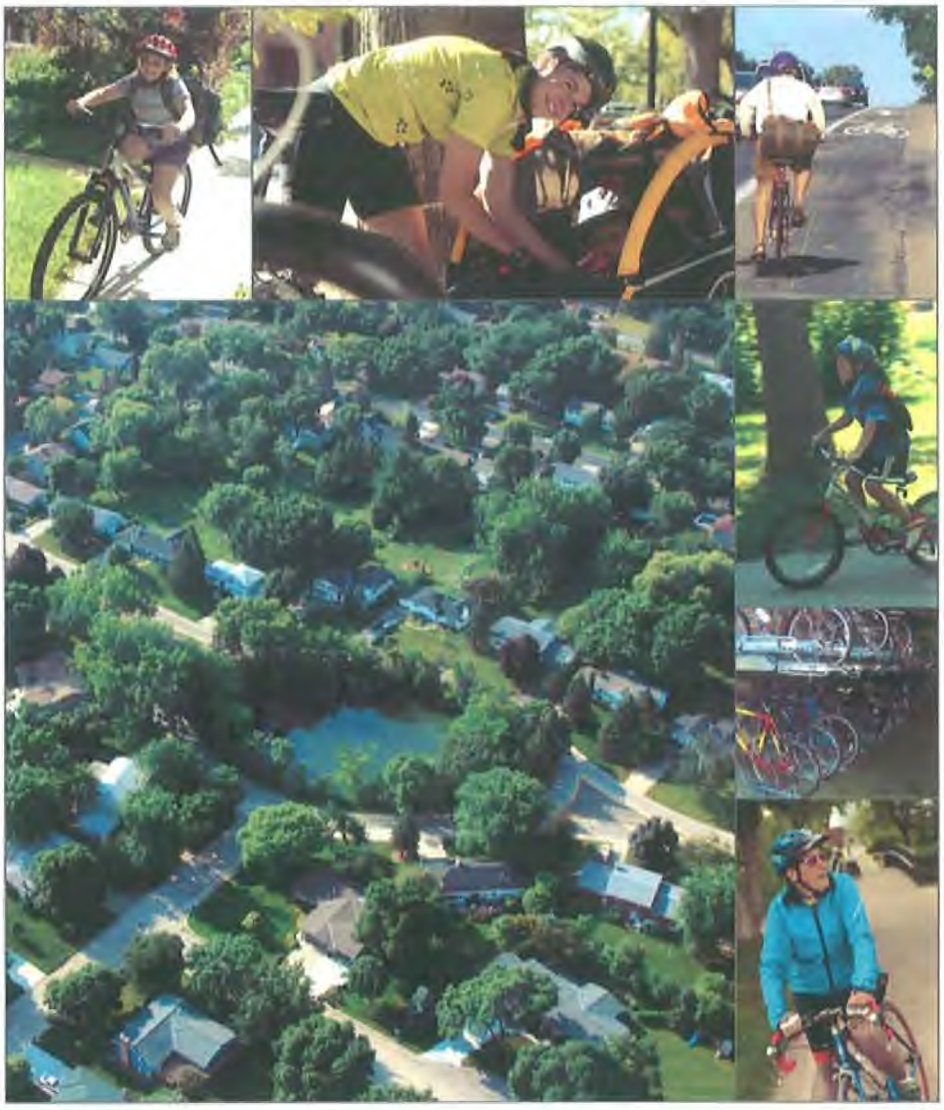
Appendix T-2

City of Edina Comprehensive Bicycle Transportation Plan



THE CITY OF EDINA COMPREHENSIVE BICYCLE TRANSPORTATION PLAN

SEPTEMBER 19 2007

BIKE EDINA
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CITY OF EDINA, MINNESOTA
INCORPORATED 1888

a people-centered,
asset-based approach to
urban planning, policy and design
community design group

SEPTEMBER 19 2007

THE CITY OF EDINA COMPREHENSIVE BICYCLE TRANSPORTATION PLAN

Prepared for
Bike Edina Task Force (BETF)
The City of Edina

Funding provided by
The City of Edina
Blue Cross and Blue Shield of Minnesota

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"When I go biking,
I repeat a mantra of the day's sensations:
bright sun, blue sky, warm breeze,
blue jay's call, ice melting and so on.
This helps me transcend the traffic,
ignore the clamorings of work,
leave all the mind theaters behind
and focus
on nature instead.
I still must abide by the rules of the road, of biking, of gravity.
But I am mentally far away from civilization.
The world is breaking someone else's heart."

~Diane Ackerman

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The Regional Canadian Pacific Trail will connect important destinations in Edina and provide access to regional bicycle transportation and recreation assets.

ACKNOWLEDGEMENTS

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... And our sincere gratitude to the many people who have participated in this and similar projects through the years, and without whose guidance, patience and optimism this work would not be possible.

Foreword

Imagine first that a network of safe, inviting and convenient bike routes exist in Edina, and that these routes connect shopping, employment and entertainment destinations in the city: 50th and France, Southdale Mall, Centennial Lakes, the City's schools, the parks, the Aquatic Center. Imagine also that this network is made up of routes that easily connect with regional trails and routes in adjacent cities: ride a greenway to the Cedar Lake Trail, take a safe and comfortable bikeway to the Minneapolis Chain of Lakes.

A successful bicycle transportation network will be safe, comfortable and inviting for riders of all ages and skill levels.

The City of Edina is approximately 4 miles wide in each direction. A novice cyclist, riding at an average rate of 10 miles per hour, could easily bike clear across the city in about 25 minutes. Destinations within the City would of course be much closer: imagine a fifteen minute ride to safely and comfortably arrive to 50th and France, or to school, or a park, or Southdale. All of this is possible.

A solid bicycle transportation network offers even more: the opportunity to move under your own power, to experience the sights and sounds of your neighborhood and city, to see a neighbor along the way, to re-learn the happiness of riding your bike for fun and for getting places.

This Plan is a first step towards these possibilities. We recognize that bicycle transportation is not necessarily an option that everyone will choose: some people will choose to continue making the majority of their trips by automobile, while others may prefer walking and others may decide that year-round bicycling is not for them.

But the key is on providing choices, and increasing options that allow people to take care of their daily needs in safe, comfortable, healthy, sustainable and efficient ways, that will make it possible for young and old to develop and maintain healthy lifestyles and that may help us better connect with each other.

So let us imagine ...

Executive Summary

People bike for all kinds of reasons. Children may ride to go to school, while seniors may ride to go shopping and other adults may ride to get to work; families may ride together for recreation. The work of this Plan is to guide the creation of a bicycle transportation network that accommodates the needs of cyclists of all ages and skill levels while improving safety and convenience and encouraging use of this important transportation option.

Purpose of this Plan

The purpose of this Plan is to improve conditions for cycling in Edina by reducing hazards, by developing and improving Edina's bicycle transportation infrastructure, and by inviting Edina residents, workers and visitors to include this safe, comfortable and convenient transportation option into their daily mobility habits.

Vision

The guiding vision for this document is to support the gradual transformation of the City of Edina into a "progressive bicycle-friendly community where citizens can easily integrate cycling into their daily lives."

Plan Components

This Plan includes a network of recommended bicycle routes and treatments that will help support this vision. In addition, it includes specific recommendations for developing and improving other aspects of Edina's cycling infrastructure, including provision of bicycle parking and other end of trip facilities; improving bike-related signs, signals and wayfinding; furthering the integration of bicycling and transit as a way to increase convenience for cyclists and lowering demand for automobile transportation; conducting education and encouragement programs that increase safety and invite new users to Edina's bicycle transportation system; and guidance for operation and maintenance of the system.

In addition, the Plan provides guidance for implementation, including a recommended prioritization and timeline for development and a set of recommendations to ensure that Edina cyclists can continue to have their voice heard as implementation of this and other transportation initiatives move forward.

Brief excerpts of sample recommendations from each chapter are provided in the following sections of this summary.

Two views of 70th Street, heading east from Southdale Mall, past France Avenue:

How things are today ...

... And how they could be. Even relatively modest investments to Edina's present streets can greatly improve safety and comfort for Edina cyclists.

Guiding principles

The following goals and principles guide the recommendations included in this Plan:

Improving safety

Proactively addressing existing hazardous conditions, assigning dedicated road space to cyclists, and alerting motorists of their presence will help improve safety and convenience for all users of Edina's streets and sidewalks.

Connecting to local and regional destinations

Providing safe and convenient connections to destinations in Edina and neighboring communities will increase bicycle use and help lower demand on Edina's overall automobile transportation system. Connecting to the growing network of regional trails will expand the number of potential destinations available to Edina citizens and provide increased access to our region's recreational and transportation assets.

Safe routes for all

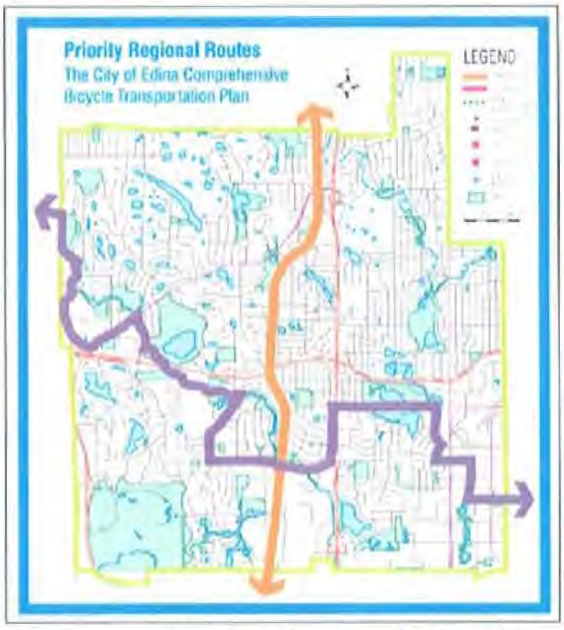
Bicycling can serve the mobility needs of people over a wide range of ages and abilities. Providing a network of safe and comfortable bicycle routes to schools and parks will be an important builder of healthy life-long habits of active living and independence for children, seniors and other adults.

Bicycling as a base for community health

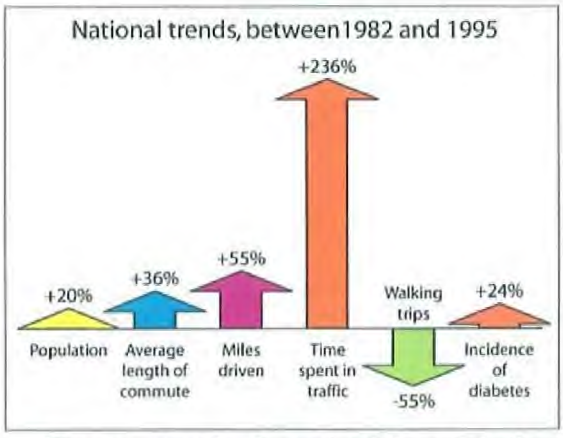
A safe and inviting bicycle transportation network will help improve community health by increasing opportunities for active transportation and active living for all of Edina's citizens.

Bicycling as a useful transportation option in Edina

A high quality bicycle network will make it easy and convenient for people in Edina to choose cycling as a way to meet at least some of their transportation and mobility needs. A network of safe, convenient and easily accessible routes will expand the use of bicycling as a useful transportation option in Edina.



Two priority regional connections recommended by this Plan: the Regional Canadian Pacific Trail (shown in orange) and the Nine Mile Creek Regional Trail (in purple).



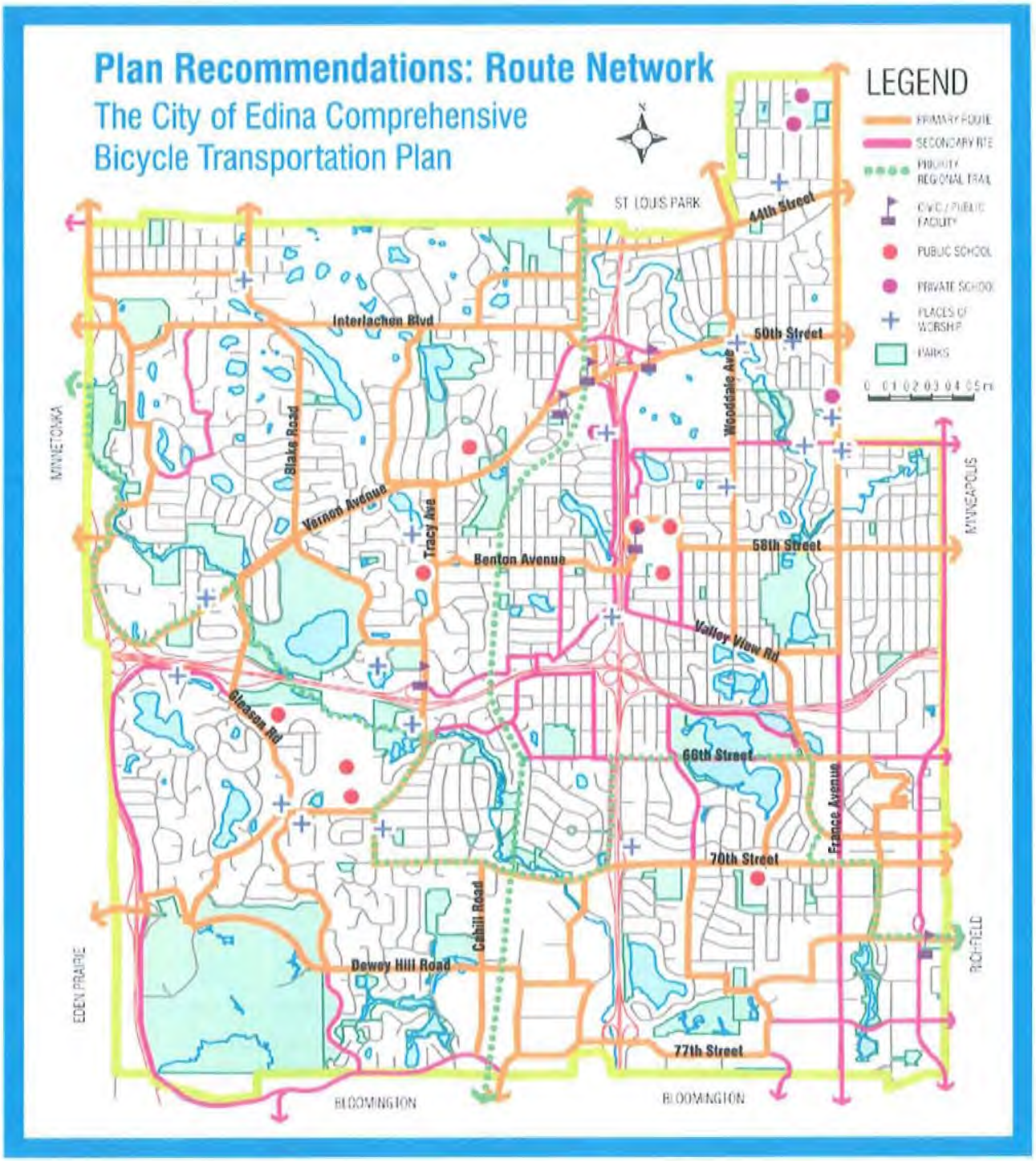
The opportunities for active living we find in our communities have ramifications for our health.

Benchmarks

Success for this Plan will be measured by increases in the number of people who cycle in Edina as a means of fulfilling at least some of their daily transportation and mobility needs.

Recommended route network

This Plan presents a network of routes which are further grouped into Primary or Secondary routes; Primary routes provide more direct connections to destinations within and outside Edina. Regional routes, including the Canadian Pacific Regional Trail and the Nine Mile Creek Regional Trail are recommended as high priorities for development.



Plan overview

Highlights from selected chapters of the Plan are provided below; please consult the complete document to see all related information and the full list of recommendations.

General recommendations

This Plan strongly recommends adopting and implementing a "Complete Streets" design policy and approach that considers the needs of all present and potential transportation network users, including cyclists, pedestrians, seniors, children, people with mobility limitations, and motorists when designing improvements to Edina's street network.

Adopting a Complete Streets design policy will help ensure that all street construction and street improvement projects in the City of Edina anticipate and address the needs of cyclists and other users regardless of whether a particular street is included within Edina's formally designated bicycle route network. Over the long run, embedding this Complete Streets approach into the City's normal operating procedures will do more for cyclists and pedestrians than any one specific plan could.

Regional routes

This Plan strongly recommends development of the Regional Canadian Pacific Trail and the Nine Mile Regional Trail. Opportunities for concurrent integration and improvement of both trails with Edina's recommended bicycle transportation network should be explored. Currently no dedicated connection to the region's growing network of dedicated facilities is provided within Edina.

Bike parking and other end of trip facilities

The Plan provides guidelines and recommendations for improving bicycle parking at schools, commercial destinations and other locations in Edina. Improving bike parking provision at Edina schools will support active living and community health goals.

Signs, signals and wayfinding

The Plan recommends installation of "blue bike lanes" at selected locations where automobile turning or entry movements require them to cross over Primary bike route facilities. Blue lanes alert motorists to the presence of cyclists and help reduce potential conflicts.

Transit integration

This Plan recommends development of a "bike station" at Southdale Mall, where one of our region's busiest transit centers is located. Bike stations, common in many US and European cities, are staffed, dedicated bike storage facilities, usually located near transit hubs or other major destinations. Cyclists who ride to transit can drop off their bikes to be stored and serviced as needed while they continue their journey on transit. These facilities provide long-term bicycle storage and sometimes also include shower and locker facilities.

Education and encouragement

Sharing information with children, seniors, and other adults on safe riding rules and techniques will help improve safety and increase cycling in Edina.

This Plan recommends working with Edina public schools to implement a bicycle safety and training component as part of their physical education programs. Encouraging students' use of a safe and convenient bicycle transportation network will help encourage a lifetime of healthy and fun physical activity.

Operations and maintenance

This Plan recommends establishing a Bicycle Facility Maintenance Request Program to extend the city's reach in protecting its infrastructure investments and providing bicyclists an inviting and safe bicycling environment. This program would provide a centralized structure for collection of small-scale, low-cost improvements, such as sweeping, repairing surface problems, and replacing unsafe gratings while helping ensure prompt response to these requests.

Timeline for implementation

This Plan includes a recommended timeline for prioritizing and carrying out improvements to Edina's bicycle transportation network. Recommendations are presented as short-term (0 to 2 years), medium-term (2 to 4 years) and longer-term (4 to 7 years) priorities for implementation. For example, signing of all Primary routes is recommended over the short term, while installation of bicycle signal heads is recommended over the longer term.

How will we make it happen?

Making this Plan real will require ongoing, day-to-day work on the part of public officials, City of Edina staff, and Edina citizens.

This Plan recommends the following as components of its implementation strategy:

Bicycle Coordinator
This Plan recommends the creation and funding of a new "Bicycle Coordinator" position within the City of Edina to coordinate implementation of the Plan, to attend to and coordinate response to bicycle network maintenance and operations issues, and to advocate for the needs of cyclists as transportation and land use projects are designed and implemented in Edina and in surrounding communities.

Bicycle Advisory Committee
This Plan recommends the formation of a Bicycle Advisory Committee as a formal citizens group with responsibility for providing citizen direction for implementation of Plan recommendations.

Formal representation in Edina transportation decision-making
The Edina Transportation Commission advises the City of Edina on issues relating to transportation and transportation improvements over its surface street network. This Plan recommends including at least one representative from the Bicycle Advisory Committee as a formal member of the Edina Transportation Commission; doing so will help ensure that the perspective and voice of Edina cyclists is included during deliberations on improvements to Edina's transportation network.

Section I

Background

This section provides an overview of existing conditions in Edina, and summarizes reasons to address and improve the city's bicycle transportation infrastructure.

In this section:

1.1 Vision and purpose

Improving the conditions for bicycling in Edina has been an important priority for Edina residents, community leaders and elected officials for several years. This Comprehensive Bicycle Transportation Plan builds on the work already completed by the Bike Edina Task Force (BETF), City of Edina staff, and Edina citizens towards the creation of a more bicycle-friendly Edina.

Vision

"The City of Edina will be a progressive bicycle-friendly community where citizens can easily integrate cycling into their daily lives."

Purpose of this Plan

The purpose of this document is to serve as a tool to guide the efforts of Edina citizens, elected officials and City of Edina staff as they work towards increasing the city's bicycle orientation.

It provides short, medium and long-term recommendations for improving the City's bicycle transportation network with the goal of making it safer and more convenient for people of all ages and skill levels to choose cycling as a preferred mode of transportation for taking care of their daily needs.

1.2 Regional context

The City of Edina is a fully developed first-ring suburb situated immediately southwest of Minneapolis in Hennepin County, with a land area of approximately 16 square miles and a population of 47,425 people.

The City is within close proximity of many important regional destinations, including the Minneapolis Chain of Lakes, St. Louis Park's Miracle Mile, Bloomington's Mall of America, and the Minneapolis / St. Paul International Airport. Southdale Mall, a regional shopping destination, is located within the city.

Edina is a major employment generator for the Twin Cities Metropolitan region. Approximately 49,790 people work in Edina, a number that is more than twice as large as the number of its residents in the labor force (22,547 people).

Edina is well connected to the regional automobile transportation network: Minnesota State Highways 62 (running east-west) and 100 (north-south) traverse the City. Minnesota State Highway 169 runs along the City's western boundary while Interstate Highway 494 runs along its southern boundary. Minnesota State Highway 7 is within three miles of the City while Interstate Highway 394 is within five miles.

Important regional bicycle trails, including the Cedar Lake LRT Regional Trail, and the Minneapolis Chain of Lakes are within close proximity of Edina. No regional trails run through Edina, however, and connection to existing bicycle transportation and recreational trails in adjoining communities is poor.

Edina and surrounding jurisdictions.

Southdale Mall is a major regional draw.

There are no bicycle trails connecting Edina to facilities in adjoining communities.

1.3 Urban form and development patterns

First incorporated in 1888, the City of Edina is a fully developed first-ring suburb. Like other communities that grew and developed in the years after the Second World War, its landscape and mobility infrastructure are oriented to automobile transportation, and pose several important challenges to comfortable and efficient use of other modes of mobility.

Southdale Mall and its surroundings in 1958.

Present land uses

Residential uses

Most of the land comprising the city of Edina (53% of total land area) is occupied by single family detached residences. Another 4% of total land area is occupied by apartment and other multi-family structures. Most of these are located along York, France and Vernon Avenues, and along Cahill Road.

Commercial uses

About 4% of Edina's land area is dedicated to retail and other commercial uses. Important commercial areas in the city include 50th and France, 70th and Cahill, 50th and Vernon, and Southdale Mall.

An additional 4% of Edina's land is used for office space. Most of these uses are concentrated along the eastern side of the city's southern border, and also just west of Highway 100 along Metro Boulevard.

Industrial uses

Slightly more than 3% of Edina's land is used for industrial purposes. Most of these uses are located between Cahill Road and Metro Boulevard just south of 70th Street.

Institutional uses

Almost 5% of Edina's land is dedicated to institutional uses, including schools, libraries, hospitals and government institutions

Parks and recreation

About 16% of Edina's land is dedicated to parks and recreational uses, including golf courses.

Connectivity

Highways 100 (running north-south) and 62 (running east-west) intersect near the center of Edina. Although the freeways provide automobile transportation network connections to point outside Edina, they create discontinuities and literal barriers for surface movement within and across Edina.

Edina's citizens in fact normally discuss their city in terms of "quadrants," implicitly recognizing the role of the freeways in separating one section of Edina from another and also recognizing the differing character of land use, density, and development intensity in each.

Future Land Use

The City of Edina 2008 Comprehensive Plan does not contemplate any significant land use changes over the residential portions of Edina.

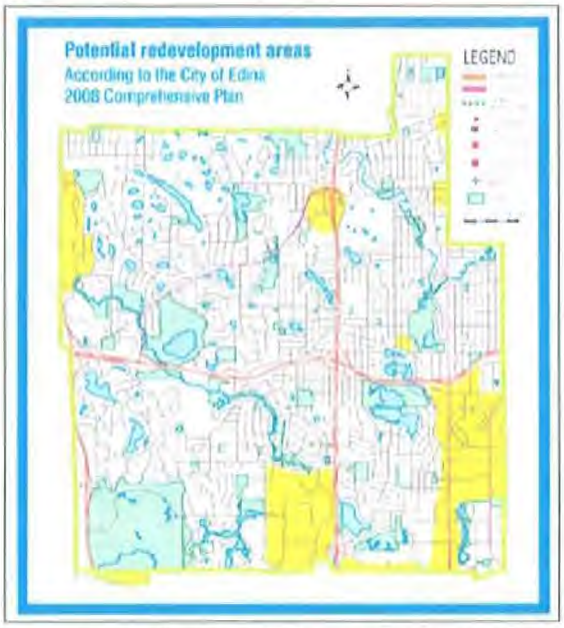
Given that Edina's landscape is now fully developed, the only places where changes in land use may occur are those that currently host warehouse/industrial sites and low density commercial areas. The 2008 Comprehensive Plan will direct proposals for more intense land uses to these locations.

The amount of land potentially available for redevelopment is about 17% of Edina's surface area. Major areas of potential change include the Cahill industrial area, the Greater Southdale area, and smaller commercial nodes at 50th and Vernon, and 70th and Cahill.

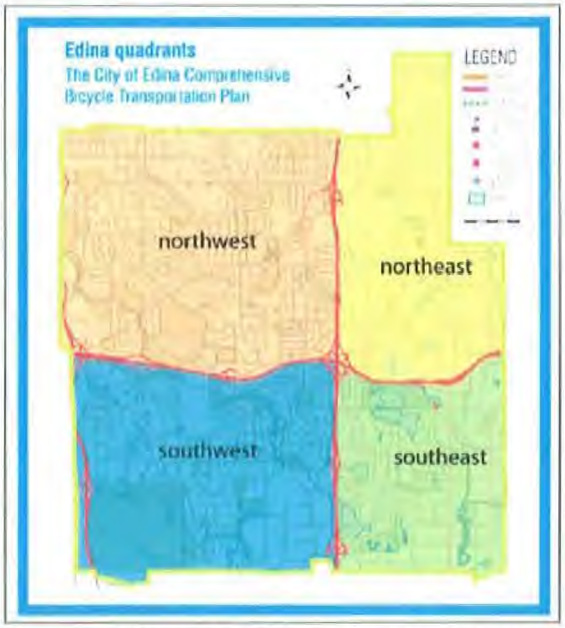
Most of the forecast growth in employment and residents will be directed toward these locations.

Implications for this Plan

- Convenient connections to potential redevelopment areas should be provided
- Providing bicycle network connections for Edina employees, visitors and customers who travel into, out of, and through Edina should also be emphasized
- Provision of high quality bicycle routes can help address issues of connectivity between quadrants while also improving connections to adjacent jurisdictions



Areas where redevelopment is expected to occur according to the City of Edina 2008 Comprehensive Plan (shown in yellow).

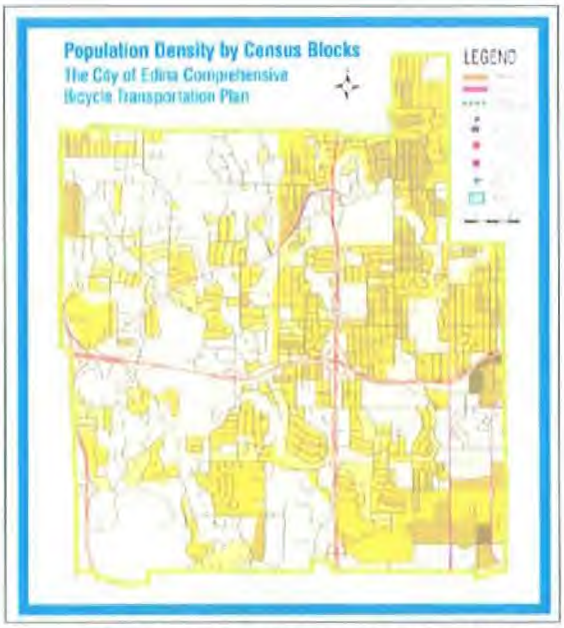


Edina citizens often discuss their city in terms of quadrants. Can a convenient bicycle network help change perception of the city to a reconnected whole?

1.4 Demographics and population characteristics

Located immediately southwest of Minneapolis in Hennepin County, the City of Edina has a total area of 16.0 square miles, of which 15.8 square miles are land and 0.2 square miles are lakes and other water bodies.

The 2000 US Census counted 47,425 people residing in Edina, in a total of 20,996 households. Of those, 12,870 were family households.



Population densities across Edina. Higher densities are shown in darker color.

Population density

Edina's 2000 population density was 4.7 people per acre. There were 21,669 units of housing, yielding an average density of 2.15 dwelling units per acre.

Households

Of the 20,996 households living in Edina in 2000:

- 27% included children under the age of 18
- 54% were married couples living together
- 39% were non-family households
- 34% were made up of individuals living alone
- 19% of all households were made up of an individual living alone who was 65 years of age or older

Edina's 2000 average household size was 2.24 and the average family size was 2.91 persons.

Census household or family?

- A "household" is a person or group of people occupying a housing unit.
- A "family household" consists of a householder (the person who owns or rents the housing unit) and one or more people living together in the same household who are related to the householder by birth, marriage, or adoption.
- A "non-family household" is a person living alone or a householder who shares the home with non-relatives only.

Age distribution

Approximately one quarter of Edina's population (22.9%, or 10,838 persons) are children under the age of 18. Of those, 8,292 children are between the ages of 5 and 18. Another quarter of Edina's population (22.7% or 10,765 persons) are senior adults 65 years of age or older. Median age for the city is 44 years.

Income levels

Median household income in 2000 was $66,019, while median income for a family was $93,496. Per capita income for the city was $44,195. About 2.0% of Edina families had incomes below the poverty line. By contrast, the county-wide median household

income was $51,711, with a median family income of $65,985 and a per capita income of $28,789.

Population and employment trends

The population level of Edina has grown slightly over the last twenty five years, going from 46,073 persons in 1980 to an estimated 47,425 persons in 2000 (an increase of 2.9% over that time). The Metropolitan Council estimates a 2006 population of 46,896 persons living in 21,100 households.

The Metropolitan Council similarly estimates a total 49,790 jobs in Edina in 2006, and forecasts an additional 9,000 jobs by 2030.

Commute to work

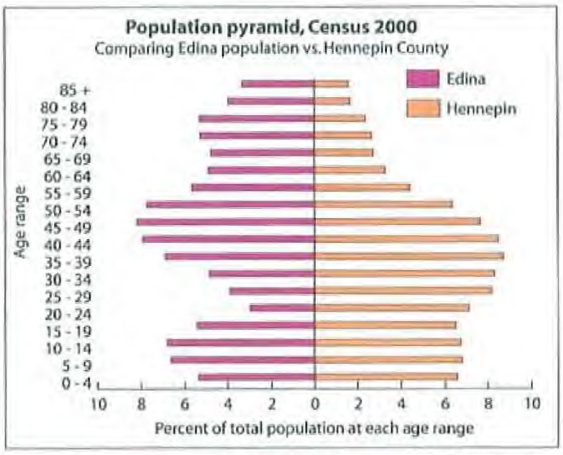
A total 6,055 Edina residents (about 27% of total residents) also work in Edina. Another 5,467 residents (about 24%) work in Minneapolis, while 4,853 residents (about 22% of total residents) work in the neighboring communities of Bloomington, Eden Prairie, Minnetonka and St. Louis Park. Only about 12% of all jobs in Edina are held by Edina residents.

Although the 2000 Census does not specifically report a category for bicycle commuting in Edina (including it under "other means" of travel to work), a total of about 0.5% of all workers can be estimated to have made their journey to work on a bicycle.

By comparison, the national average is 0.4%, while the 2005 Minneapolis figure for workers who ride their bicycle to work is 2.4% (the second highest in the nation after Portland, Oregon).

Implications for this Plan

- Approximately one quarter of Edina's population is under the age of 18. Providing safe routes to schools, parks and recreational centers is a priority.
- Approximately another quarter of Edina's population is older than 65. This portion is expected to increase to about a third of Edina's total population. Convenient and safe routes to shopping and other activities, as well as to civic and senior centers will be key. Additionally, regional trails should provide ample space for the adult tricycles which are sometimes favored by seniors.
- Providing convenient bike routes to employment centers may help decrease demand on Edina's automobile network.



A comparison of the age profiles of Edina's population with those of Hennepin County shows Edina has a higher proportion of seniors in its population. This trend is expected to continue, with a potential 70% increase in Edina's senior population by 2030.

How do Edina citizens get to work?

This is how Edina's 22,547 workers arrived to work according to the 2000 US Census:

Means of travel	Number of workers	Percent of total
Drove alone	18,269	81.0%
Carpooled	1,469	6.5%
Transit	722	3.2%
Walked	361	1.6%
Biked (estimate*)	112	0.5%
Other (estimate*)	75	0.3%
Work at home	1,539	6.8%

** Extrapolated from 2000 Census data and regional trends.*

Did you know?

- Almost one half (49%) of all trips made by Dutch seniors 65 or older are made by bicycle
- Almost one out of every five trips (18%) made by German seniors are by bicycle
- About 0.2% of US senior trips are by bike

Source: John Pucher and Lewis Dijkstra, Promoting Safe Walking and Cycling to Improve Public Health: Lessons from The Netherlands and Germany. American Journal of Public Health, Vol. 93, No. 9, September 2003.

1.5 Existing bicycle conditions and infrastructure

In general, Edina does not presently provide adequate facilities or infrastructure to accommodate and encourage cycling. There are no signed or striped bike routes within the City, there are no designated connections to the growing network of regional bicycle facilities and shared-use trails, and bicycle parking and other end-of-trip facilities are seldom provided.

On France Avenue today.

Additionally, Edina's landscape has been impacted by earlier state and federal transportation policies that prioritized automobile movement at the expense of other modes. Combined with prevailing land use and site planning practices, they have shaped an urban environment that works against the comfortable use of bicycling as a means of transportation within the City and over a significant portion of its existing street network.

"Even the longest journey must begin where you stand."
-- Lao-Tzu, Chinese philospher, 6th Century BC

Fortunately there is also some good news. Engaged citizens are advocating for improvement of cycling conditions; Edina's elected officials have shown strong support for improvement; leaders within the City's Engineering, Planning and Public Works departments have shown an open and welcoming attitude to making important improvements for all modes of mobility within the City. And there is a growing awareness in our state and nation about the importance of providing increased options for transportation in our cities.

The time is right for making the changes that are necessary to make cycling a viable transportation option for riders of all ages and skill levels in Edina.

At present, it is possible (though not necessarily inviting) to ride a bicycle in Edina, and arrive to useful destinations. A number of streets through the City are already functioning as informal bike routes. Relatively modest investments can help create bicycle transportation networks and connections linking places of employment with regional trails, schools with residential areas, neighborhoods with shopping and entertainment districts.

Making these connections real is the work of this Plan. It includes recommendations for improvement (found in Section II) that can serve as incremental changes towards a bigger transformation. The aim of this chapter is to provide additional

detail on present conditions in order to clarify areas that need to be addressed and to help set up benchmarks for improvement.

Surface streets

No cycling facilities are presently provided along Edina's street network. Nevertheless, a number of streets are already utilized by cyclists for connection and movement to destinations within and outside of Edina. Among those streets which appear to be favored by Edina cyclists at present are:

- Wooddale Avenue
- 58th Street
- 44th Street
- 70th Street
- Vernon Avenue
- Tracy Avenue
- Gleason Road
- Valley View Road
- Benton Avenue
- Interlachen Boulevard
- Olinger Boulevard

In general, lower speed limits create more comfortable conditions for cyclists. An automobile speed limit of 25 miles per hour has been found to provide for safe and efficient use of surface streets by pedestrians, cyclists and motorists. Additionally, lower speed limits significantly decrease the severity and risk of injury to pedestrians, cyclists and motorists as a result of automobile crashes.

The majority of surface streets in Edina have posted speed limits of 30 miles per hour, which, though not ideal, provides usable conditions for cycling if actual travel speeds stay within those limits.

However, several important streets and potential bicycling routes in Edina have significantly higher speed limits. Notable exceptions to the 30 mph limits are portions of Vernon Avenue (with speed limits of 40 mph in a segment that includes Olinger Boulevard and Tracy Avenue), France Avenue (40 mph between 66th Street and the southern city limit; 35 mph between 54th Street and 6th Street), 66th Street (35 mph between Normandale Road and the eastern city limit, including the segment serving the Edina Aquatic Center and Rosland Park) and York Avenue (between 66th Street and the southern city limits).

A cyclist heading south on Valley View Road just past Highway 62 towards Southdale Mall.

Did you know?

A recent Twin Cities survey of potential bicycle commuters found that 79% of respondents said that on-street bike lanes would be an important factor in deciding whether or not to use a bicycle as transportation.

Source: Minnesota Center for Survey Research, University of Minnesota Center for Transportation Studies, 1999.

Speed limits over Edina's surface streets: green is 30 mph, purple is 35 mph, and red is 40 mph. Highways are shown in grey.

Some surface streets, like France Avenue south of Highway 62, present inhospitable riding conditions and are a barrier to bicycle and pedestrian movement along and across them.

Some factors that increase discomfort for cyclists using a particular road include the number of lanes of traffic carried by that road, the speeds at which automobiles actually travel on them (which is often higher than the posted speed limit), and the amount of space which is available for riding closest to the right edge of the road. Although cyclists in Minnesota have the legal right to use the full right-most lane for travel, the majority of actual and potential cyclists are not likely to do so, especially if they are riding by themselves or if the road is heavily used by automobiles.

On France Avenue today.

Regional Connections

The Twin Cities region is nationally known for its extensive system of regional bicycle trails, which provide an expansive network of grade-separated trails. Used for recreation and transportation, these trails provide safe and convenient access to many of our region's assets. They also invite novice cyclists to use their bikes for transportation by providing them with comfortable, car-free spaces in which to ride. The Midtown Greenway, the Cedar Lake Trail, the Kenilworth Trail, and the Gateway Trail are among the many trails that criss-cross our region. Unfortunately, no regional bicycle trails run through or within Edina. Additionally, connection to nearby trails, including to the Cedar Lake LRT Regional Trail, is not provided, signed or otherwise identified.

A growing network of regional trails connects cyclists to our metropolitan area's many employment, education, entertainment and recreational assets.
Photo: West River Road near the University of Minnesota, in Minneapolis.

End of Trip Facilities

End of trip, or ancillary facilities, are those provisions made for cyclists at the beginning and end of their trip. These include bicycle parking racks or lockers, showers and changing space for commuters, and bike stations where bikes may be dropped off with an attendant and where maintenance may be performed while the cyclist is at their destination.

With the exception of a limited number of bicycle parking racks, there are virtually no end of trip facilities in Edina. A brief inventory, performed with the help of members of the Bike Edina Task Force (BETF), follows below:

Bicycle parking

At shopping and retail destinations

- Southdale Mall has six bicycle racks that could accommodate 64 bicycles. Two of those racks, accommodating a total of 14 bicycles, are located to serve the Mall's Transit Center (the fourth busiest in MetroTransit's system), and are located in the mall's smoking area. By comparison, Southdale provides 6,725 parking spaces for automobiles - bicycle parking is less than 1% of all vehicle parking provided
- A total of 12 "inverted U" bike parking racks are provided at 50th and France, potentially accommodating a total of 24 bicycles
- No bicycle parking facilities are provided at 70th Street and Cahill Road
- No bicycle parking facilities are provided at 50th and Vernon Avenue

Bicycle parking is not provided at the 70th Street and Cahill Road commercial area.

At Edina public schools

In general, adequate bicycle parking facilities are not provided at Edina public schools. Several schools (including the City's High School) have no bicycle racks at all, while others provide an insufficient number of bicycle parking spaces and include substandard bike parking racks.

For guidance on number of racks to be provided please see Appendix A.4. For guidance on recommended types of bicycle racks please see Appendix A.5.

Following is a brief survey of existing bicycle parking provision at Edina schools conducted by members of the Bike Edina Task Force in August of 2007. Where provided, enrollment figures are approximate for school year 2006-2007 (approximate total enrollment for all Edina public schools is 7,500 students).

Elementary schools

- Concord Elementary School (675 students): Three bike racks, accommodating a maximum of 75 bicycles, are provided. Racks are located in the automobile parking lot at some distance from the school's main entrance. Racks are of a substandard type that does not easily allow bikes to be secured.
- Creek Valley Elementary School (550 students): No bike racks are provided.
- Cornelia Elementary School (550 students): Five bike racks,

accommodating a maximum of 75 bicycles, are provided. Bike parking is located at the rear of the school and is visible from classrooms, near the bus entrance. Racks are of a substandard type that does not easily allow bikes to be secured.

- Highlands Elementary School (550 students): Three bike racks, accommodating a maximum of 37 bicycles, are provided. Racks are located 130 yards from the school's front door.
- Countryside Elementary School (550 students): Three bike racks, accommodating a maximum of 30 bicycles, are provided. Racks are located outside the perimeter of the school's automobile parking lot, requiring students who ride their bikes to cross the lot and street entrance to get to the school.
- Normandale French Immersion School (625 students): One bicycle rack, accommodating a maximum of 12 bicycles, is provided. Rack is of a substandard type that does not easily allow bikes to be secured.

Middle schools

- South View Middle School (1,125 students): Six bike racks, accommodating a maximum of 90 bicycles, are provided. Racks are located across a service road from the school. Racks are of a substandard type that does not easily allow bikes to be secured.
- Valley View Middle School (1,250 students): Four bike racks, accommodating a maximum of 48 bicycles, are provided. Racks are located on the east side of the building, away from principal entrances. Racks are of a substandard type that does not easily allow bikes to be secured.

High School

- Edina High School (1,725 students): No bike racks are provided. One 2.25 acre automobile parking lot accommodating approximately 300 cars is provided.

A significant number of Edina schools do not provide adequate bicycle parking facilities for students.
Photo: At South View Middle School.

At Edina parks and recreational facilities

Citizens of Edina are justifiably proud of the city's excellent park system and programs. Unfortunately, there generally is poor provision of bicycle parking facilities at Edina parks and other recreational facilities.

Only a few parks in Edina provide adequate bicycle parking facilities. Where available, they are well used.
Photo: At Rosland Park.

A brief summary of existing bicycle parking facilities at selected Edina parks, from a survey conducted by members of the Bike Edina Task Force in August of 2007, is given here.

Guidance on the number of racks recommended for recreational facilities is given in Appendix A.4; guidance on the types of bicycle racks recommended is given in Appendix A.5.

Edina Parks and Recreation Centers

- Alden: No bike parking is provided
- Aquatic Center: Two bicycle racks accommodating a maximum of 10 bicycles are provided.
- Arden: No bike parking is provided
- Arneson Acres: No bike parking is provided
- Braemar: One bicycle rack accommodating a maximum of 10 bicycles is provided. The park includes accommodation for approximately 800 automobiles
- Bredesen: One bicycle rack accommodating a maximum of 10 bicycles is provided. The park includes accommodation for approximately 60 automobiles
- Birchcrest: No bike parking is provided
- Chowen: No bike parking is provided. The park includes accommodation for approximately 7 automobiles
- Creek Valley Park: No bike parking is provided
- Fox Meadow: No bike parking is provided
- Garden: No bike parking is provided. The park includes accommodation for approximately 400 automobiles
- Highlands Park: No bike parking is provided
- Kojetin: No bike parking is provided
- Lake Edina: No bike parking is provided
- McGuire: No bike parking is provided
- Melody Lake: No bike parking is provided
- Normandale: No bike parking is provided. The park includes accommodation for approximately 20 automobiles
- Pamela: No bike parking is provided. The park includes accommodation for approximately 35 automobiles
- Rosland: One bicycle rack accommodating a maximum of 5 bicycles is provided
- St. Johns: No bike parking is provided
- Sherwood: No bike parking is provided
- Strachauer: No bike parking is provided. The park includes accommodation for approximately 20 automobiles
- Tingdale: No bike parking is provided
- Todd: No bike parking is provided
- Utley: No bike parking is provided. The park includes accommodation for approximately 45 automobiles
- Van Valkenberg: No bike parking is provided. The park includes accommodation for approximately 90 automobiles
- Walnut Ridge: No bike parking is provided. The park includes accommodation for approximately 26 automobiles
- Weber: No bike parking is provided. The park includes accommodation for approximately 60 automobiles
- Wooddale: One bicycle rack accommodating a maximum of 10 bicycles is provided. The park includes accommodation for approximately 35 automobiles
- York: No bike parking is provided

Other End of Trip Facilities

There are no other end of trip facilities existing in Edina.

Current bicycle use

Observation indicates that a significant number of people ride bicycles in Edina. There are several streets that are commonly mentioned as preferred, informal bike routes for travel through the city. However, as noted in Chapter 1.4 (Demographics and population characteristics) there is a general lack of actual counts and other data about the number of people using bicycles for transportation in Edina (as is the case in most other communities in our state).

An Edina cyclist riding south on Valley View Road, towards Southdale Mall.

Fortunately, there are a couple of resources that may help in providing a baseline for understanding current use and for providing benchmarks for improvement.

The first is the Edina Parks and Recreation system survey conducted in Fall 2006 and which showed that improvement of Edina's cycling infrastructure is a priority for a significant majority of Edina households. This survey is explored in more detail in Chapter 1.6 (Need for improvement).

The second resource is the recently conducted bicycle and pedestrian counts taken in Edina on two days during mid September of 2007. This count activity, performed for the first time in Edina in 2007, is part of Transit for Livable Communities' (TLC) metropolitan bike and walk traffic count efforts, which were conducted simultaneously throughout the region and which aim to establish benchmarks for use of the region's bikeways by bicycle commuters.

Some locations in Edina are designated for cycling even though they present hazardous conditions. For example, the western side of the Centennial Lakes trail mixes pedestrians and cyclists on a narrow path, does not provide adequate sight distance, and is in general not suitable for biking. Developing facilities that provide separate, sufficient and safe space for cyclists and pedestrians is recommended instead.

Two locations were chosen, and activity was measured for two days during the commuting time range of 4:00 to 6:00 p.m. In that time period an average of 21 bikers and 35 pedestrians were counted at 44th Street and Brookside Avenue while 17 bikers and 14 pedestrians were counted at 70th Street and Cahill Road.

Members of the Bike Edina Task Force received training from TLC, conducted the counts and summarized the data. It is recommended that this activity be continued into the future and expanded to additional locations to help provide a clearer picture of bicycle use and trends in Edina.

1.6 Need for improvement

There are many sound reasons to make the necessary investments to improve Edina's bicycle transportation infrastructure. An accessible, safe and useful bicycle transportation network is consistent with and in fact furthers the City's long-term goals and objectives, as articulated in the City's Vision Statement, which is included in Edina's 2008 Comprehensive Plan Update:

On Eden Avenue.

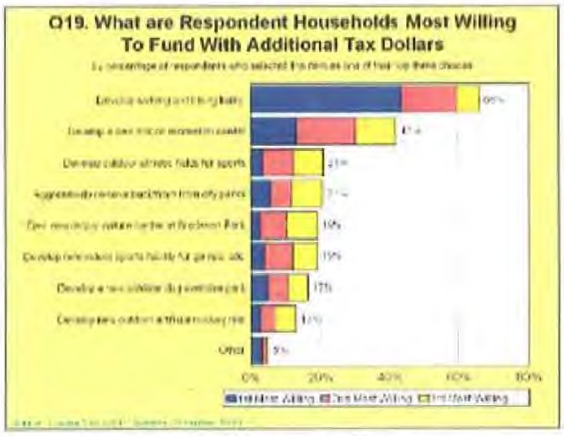
Edina will be the preeminent place for living, learning, raising families and doing business distinguished by:

- *A dynamic and sustainable community*
- *A livable environment*
- *Effective and valued City services*
- *A sound public infrastructure*
- *A balance of uses*
- *Innovation*

In addition, the improvements this Plan recommends help address the following needs and conditions:

To respond to citizen and community interest

The citizens of Edina have consistently expressed a desire for improvement of bicycling facilities in their city.



From the Parks and Recreation survey.

Most recently, the City hired a consultant to survey Edina households about Parks and Recreation system services and priorities during the fall of 2006. The survey, which received almost a thousand responses (and is statistically valid for the population of Edina as a whole) found:

- 86% of respondents had a household need for walking and biking trails.
- 64% of respondents said walking and biking trails were among the top four most important facilities; 32% ranked walking and biking trails as their first choice, the highest percentage for any facility.
- 84% would use walking and biking trails for exercise and fitness; 84% for enjoying the outdoors; 25% for transportation.
- 89% of respondents were supportive of the City developing walking and biking trails; 65% were very supportive.

- 66% of respondents said walking and biking trails were among the top three actions they would be willing to support with tax dollars; 44% ranked walking and biking trails as their first choice to support with tax dollars, the highest percentage for any action.

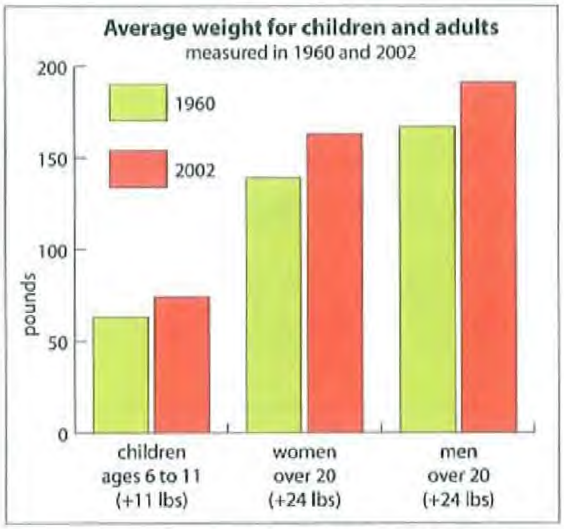
To improve community health and encourage active living

A growing body of research demonstrates connections between a community's built environment, the opportunities it provides for physical activity, and the health of its population. Places with an infrastructure that supports walking and biking have populations that are more physically active and have lower levels of obesity. A population that engages in regular, moderate physical activity has lower incidence of heart disease, stroke, hypertension, diabetes, colon cancer, osteoporosis, depression, and breast cancer.

The Centers for Disease Control and Prevention (CDC) recommends 30 minutes of moderate physical activity 5 days per week. In 2005, only half of all Minnesotans met this guideline, about the same as the national average. According to data collected by Hennepin County, only 43% of residents of Bloomington, Richfield and Edina met the guideline in 2002 (the most recent data available). Although these exceed the federal goal of 30% of adults meeting the guideline, they fall short of the Prevention Minnesota goal of 75% of adults being moderately active 5 to 7 days per week.

Nationally, the effects of reduction in regular physical activity and the corresponding increase in sedentary lifestyles have especially impacted young people, with dramatic increases in obesity and diabetes. Children who are overweight are likely to become overweight adults. Likewise, children who learn the importance and pleasure of routine physical activity also carry these lessons throughout life.

A mobility and transportation system that encourages healthy habits of activity and decreases reliance on automobile travel also brings improvements to other aspects of community health, including increased community connectedness and mental well-being, decreased air pollution and injuries due to car crashes, and enhanced feelings of independence and empowerment.



Source: National Center for Health Statistics, US Centers for Disease Control and Prevention (CDC).

Did you know?

Just three hours of bicycling per week reduces the risk of heart disease and stroke by 50%.

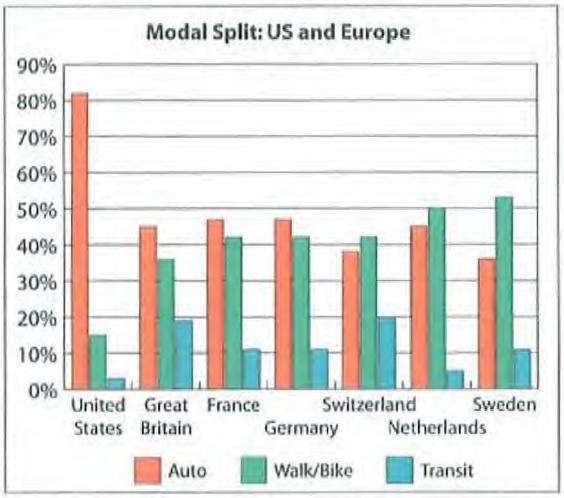
Source: Bikes Belong Coalition, based on US Surgeon General's Report on Physical Activity and Health.

To increase mobility and transportation options

Bicycling is a safe, fun and active choice for transportation. It is a quiet, nonpolluting, energy-efficient and versatile way of getting around, and one that can provide additional mobility options to automobile drivers and non-drivers alike, including children and senior adults.

A functioning bicycle transportation network can reduce the demand for automobile travel by providing another means of travel (and one that brings additional benefits to the rider). Recent studies point out that about one half of all trips in the Twin Cities region are less than four miles in length; in fact, two out of five trips (40%) are less than two miles. Most of these trips are presently made by automobile.

A novice cyclist, riding at a comfortable pace, can easily cover two miles in 12 to 15 minutes; four miles (the east-west and north-south length of the city of Edina) would take about 20 to 25 minutes. If comfortable and safe bicycle accommodations were available in Edina, all of the destinations within it would be just a brief ride away. Riding to school, or the senior center, or the grocery store or Southdale would cease being the exclusive domain of the automobile and allow people a greater set of choices on how to get around.



Source: Peter Calthorpe: The Next American Metropolis: Ecology, Community, and the American Dream.

Did you know?

Almost half of all vehicle trips in the Twin Cities are less than four miles.

Source: US Department of Transportation, Federal Highway Administration, 1995 Personal Transportation Survey.

To increase safety for cyclists

Many people cycle in Edina today, even without adequate facilities. But because facilities are not available, many cyclists will ride in ways that actually increase hazards to them and to other users of Edina's streets. It is not uncommon to see Edina residents riding on sidewalks (where motorists and pedestrians don't expect them), or against traffic on streets where a striped automobile parking row is provided. Many more potential riders will choose to not ride because they perceive the present conditions to be unsafe.

Creating a network that lets cyclists and motorists know when and where to expect each other will help increase safety and the perception of safety for new and experienced riders, and will help decrease potential conflicts. Creating facilities for cyclists will also help decrease discomfort and hazards for pedestrians and improve safety and conditions for both types of users.

Lack of safe and comfortable bike facilities encourages unsafe riding. Photo: On 77th Street today.

1.7 Policy basis

Current local, state and federal policies offer strong support for making improvements to bicycle transportation facilities in jurisdictions throughout the Metro area.

Making investments to improve Edina's bicycle transportation network is consistent with policies and positions from local, state and federal planning and transportation agencies and bodies.

A brief list is included in this chapter.

On Wooddale Avenue today.

City of Edina Comprehensive Plan

The 2008 City of Edina Comprehensive Plan (currently under development) responds to ten objectives that provide a broad statement of the values and directions for shaping change in Edina. Three of those objectives are directly addressed by an improved bicycle transportation network in Edina:

Objective 4
"Develop and maintain a coordinated and balanced transportation system that provides a variety of choices among transportation modes."

Objective 9
"Improve community health and fitness."

Objective 10
"Maintain a quality, sustainable environment."

Please see Appendix A.1 to read the complete list of 2008 Comprehensive Plan objectives.

Metropolitan Council

The Metropolitan Council explicitly supports improvement and provision of bicycle facilities as part of transportation investments in cities within its jurisdiction.

The Council's 2030 Transportation Policy Plan includes several policies that strongly recommend provision of cycling facilities. A brief excerpt is provided here; the full section can be found in Appendix A.2.

Policy 15

Develop and Maintain Efficient Pedestrian and Bicycle Travel Systems

"Safe, high-quality, continuous, barrier-free pedestrian and bicycle facilities must be developed, maintained and improved to function as an integral part of the region's transportation system. Compact, mixed-use development with facilities for pedestrians and bicyclists helps reduce short automobile trips. Over the last 10 to 15 years, the region has made an effort to direct a higher level of transportation investments to special facilities for pedestrians and bicyclists, either as freestanding projects or as part of larger transportation projects. As the region promotes the development of mixed-use centers, providing facilities for these non-motorized modes becomes an increasingly important component of planning at the city, county and regional level. As recognized in the federal surface transportation law, well-developed pedestrian and bicycle systems help promote energy conservation, reduce the pressure on the highway system, and preserve the environment. In addition, recent research indicates that residents of places designed with accommodations for bicyclists and pedestrians are more active and therefore healthier than residents of other areas."

Minnesota Department of Transportation

The Minnesota Department of Transportation (Mn/DOT) has in recent years adopted policies that strongly advocate for the provision of adequate facilities for bicyclists.

Mn/DOT's official vision for the role of bicycle transportation in the state's overall transportation network states:

"Minnesota is a place where bicycling is a safe and attractive option in every community. Bicycling is accommodated both for daily transportation and for experiencing the natural resources of the state."

Mn/DOT's role in making this vision reality is included in its mission statement regarding bicycle transportation:

"Mn/DOT will safely and effectively accommodate and encourage bicycling on its projects in Minnesota communities, plus in other areas where conditions warrant. Mn/DOT will exercise leadership with its partners to achieve similar results on their projects."

What is the Metropolitan Council?

The Metropolitan Council is the regional planning organization serving the Twin Cities seven-county metropolitan area.

The Council provides and manages regional services including public transportation, wastewater treatment, and regional and municipal planning.

It sets up the rules and framework for regional investments in transportation, parks and open space, and other systems, and provides funding for implementing projects meeting regional goals.

Starting in 2008, Mn/DOT will require all new construction projects over which they have jurisdiction to include "safe and effective" bicycle accommodations. Only highway construction projects are excepted from this requirement.

Federal Policies

AASHTO Guidance

The American Association of State Highway and Transportation Officials (AASHTO) is a standards-setting body that publishes specifications and policies guiding highway design and construction practices throughout the United States. Its policies regarding provision of bicycle facilities are strongly supportive:

"All highways, except those where bicyclists are legally prohibited, should be designed and constructed under the assumption they will be used by cyclists. Therefore, bicycles should be considered in all phases of transportation planning, new roadway design, roadway construction and capacity improvement projects, and transit projects."

Federal Agencies

The Federal Highway Adminstration (FHWA)'s Non-motorized Design Guidance, governing implementation of the Transportation Equity Act for the 21st Century (TEA-21) and subsequent authorizations, states:

"Bicycle and pedestrian ways shall be established in all new construction and reconstruction projects in urbanized areas (unless prohibited by law, excessive cost, or demonstrated absence of need)."

Federal Law

The Transportation Equity Act for the 21st Century (TEA-21) authorized the Federal surface transportation programs for highways, highway safety, and transit for the 6-year period between 1998 and 2003. After temporary extensions, the act was reauthorized as SAFETEA-LU (Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users) in 2005 to govern transportation spending until 2010. It states:

"Bicycle transportation facilities and pedestrian walkways shall be considered, where appropriate, in conjunction with all new construction and reconstruction of transportation projects, except where bicycle and pedestrian use are not permitted."

TEA-21 and SAFETEA-LU

Many of the recent changes in state and federal transportation policies regarding bicycling facilities are the result of federal legislation governing federal surface transportation investments.

TEA-21 (The Transportation Equity Act for the 21st Century) authorized the Federal surface transportation programs for highways, highway safety, and transit for the 6-year period between 1998 and 2003. After temporary extensions, the act was reauthorized as SAFETEA-LU (Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users) in 2005 to govern transportation spending until 2010. It states:

"Bicycle transportation facilities and pedestrian walkways shall be considered, where appropriate, in conjunction with all new construction and reconstruction of transportation projects, except where bicycle and pedestrian use are not permitted."

The Act further includes seven planning objectives that must be addressed in regional transportation plans. Four of these objectives are consistent with directing improvements to bicycling facilities and infrastructure:

Objective 2
"Increase the safety and security of the transportation system for motorized and non-motorized users"

Objective 3
"Increase the accessibility and mobility options available to people and for freight"

Objective 4
"Protect and enhance the environment, promote energy conservation and improve the quality of life"

Objective 5
"Enhance the integration of connectivity of the transportation system, across and between modes, for people and freight"

Section II

Recommendations

This section includes recommendations for addressing the various systems that can help improve conditions for cycling in Edina and bring the vision guiding this work closer to reality.

In this section:

2.1 Route selection and recommendation principles

Several project principles guide the selection of routes presented in this Plan. These principles were derived from guidance provided by Bike Edina Task Force (BETF), City of Edina staff, and members of the public.

An Edina family cycling on 66th Street near Southdale Mall.

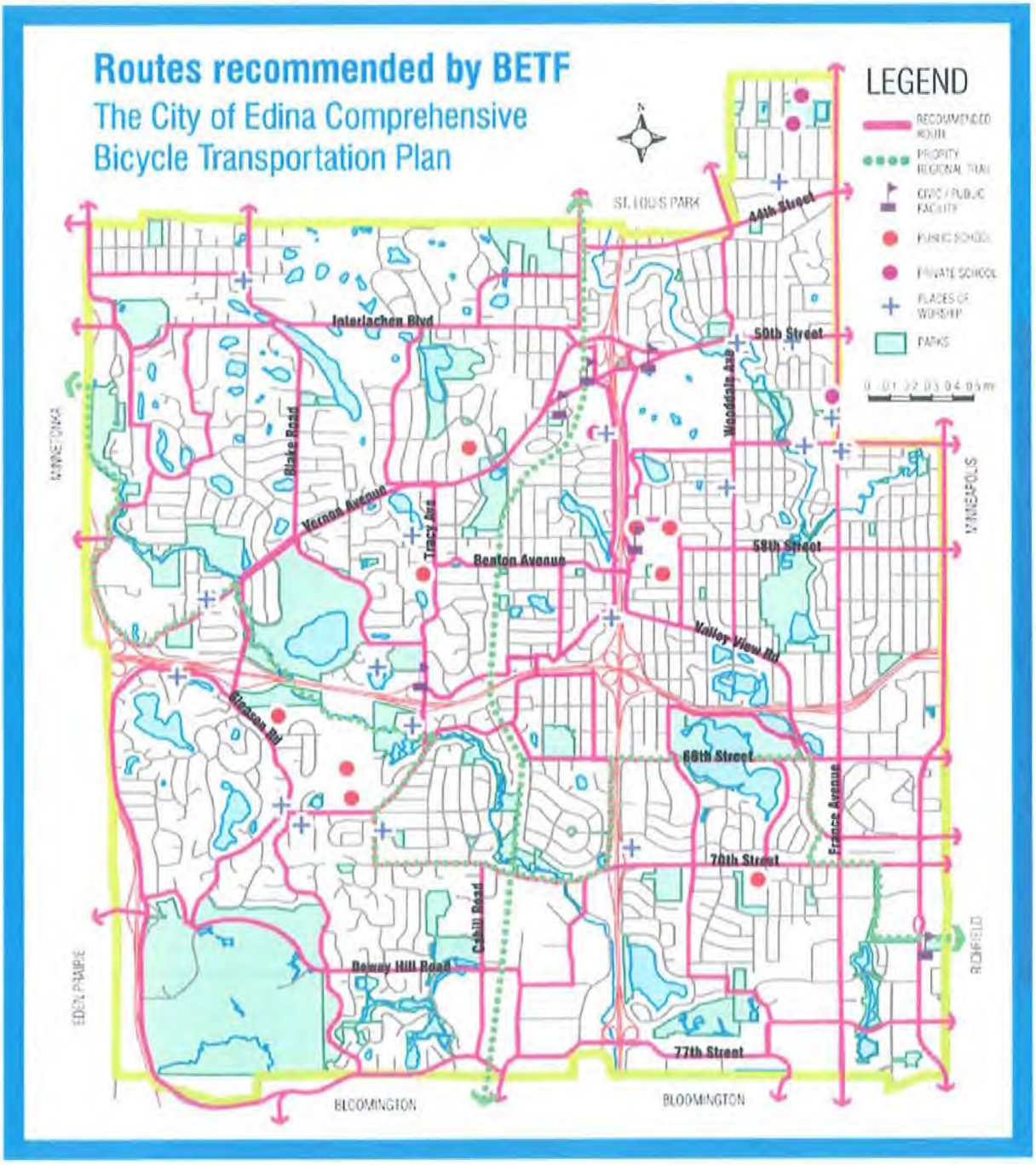
Goals and guiding principles

1. Increase safety and convenience for Edina cyclists
2. Increase opportunities for bicycling as a transportation option
3. Create a network of routes that is within reasonable distance of the greatest number of Edina residents and workers
4. Provide safe and convenient bicycle access to major destinations within Edina, including commercial and entertainment areas, employment centers, and civic institutions; provide safe and convenient connections between Edina quadrants
5. Provide safe and convenient connections to adjacent communities and other locations outside of Edina
6. Provide connection to existing and proposed regional commuter and recreational bicycle trails
7. Provide safe and convenient routes to schools, recreation centers, and other institutions serving the needs of young people in Edina
8. Provide safe and convenient routes to destinations serving the needs of senior adults in Edina
9. Recommend practical, cost-efficient improvements that increase the bicycle-friendliness of Edina's existing surface street network
10. Improve the quality and quantity of end of trip facilities in Edina

Foundation

The routes recommended in this Plan are based on the routes identified, selected and recommended by the Bike Edina Task Force (BETF) as part of the work they completed in Fall 2006. All of the routes selected and recommended by BETF are carried forward and identified for designation as recommended routes (with some additions, route hierarchy and implementation recommendations) by this Plan as included in Chapter 2.2 (Recommended Routes).

A map of the original routes developed by BETF follows below:



Principal Destinations

The Bike Edina Task Force identified the following as priority destinations and objectives for Edina cyclists and for this Plan:

- Connection to the Cedar Lake LRT Regional Trail
- Connection to shopping, entertainment and commercial areas in Edina, including Southdale, 50th and France, 50th and Vernon, and 70th and Cahill
- Provision of safe, inviting and comfortable routes to schools in Edina
- Provision of safe, inviting and comfortable routes to parks, civic and recreation centers, including the Edina Aquatic Center and other destinations sought by children and families

The Cedar Lake LRT Regional Trail, adjacent to Edina's northwest border, is one of the top connections desired by Edina cyclists.

The Bike Edina Task Force recommendations inform and are carried forward by this Plan. In addition, they are supplemented by recommendations to connect employment centers, locations of high residential density, potential growth and development areas (as identified by the City of Edina's 2008 Comprehensive Plan), and to address the mobility needs of Edina seniors.

Methodology

Route segments initially identified through BETF's work and by this Plan were evaluated using several criteria, which depended on a number of inter-related factors, responded to identified needs, and followed accepted bicycle transportation, route network and human factors design practice.

The goal was to identify a network of Primary routes that would help connect major destinations and aid movement through Edina while serving as a backbone for a wider network of Secondary routes that extend the network's usability and access, and improve safety and convenience for bicycle travel over all of Edina's surface streets.

Balancing constraints

Among the variables considered in this iterative process are the following:

- The need to maximize the number of potential destinations while minimizing the number of recommended Primary routes in order to reduce network complexity
- The need to create a network that could be easily communicated and understood
- The desire to make use of existing bicycle transportation

assets in Edina by directing enhancements to those routes that Edina cyclists are already using

- The desire to minimize implementation expenses and potential hurdles by recommending solutions that work within the existing street geometry and right-of-way constraints

Roadway summaries

Recommended streets were assessed through riding and through an inventory of geometric constraints, existing traffic conditions, potential to provide connections to other routes or destinations, present use and other related characteristics, including:

- Total roadway width (curb-to-curb)
- Number of automobile driving lanes
- Presence of parking lanes or sidewalks
- Average daily traffic
- Present automobile speed limits
- Functional classification
- Available right of way
- Potential locations or other routes accessible from route
- Ease of access to route for potential users

It is recommended that road condition summaries be updated and refined as needed by the Edina Bicycle Coordinator and Bicycle Advisory Committee (part of the recommendations presented in Chapter 3.2).

Roadway summary: Interlachen Boulevard	
Total roadway width (ft)	34
Total automobile driving lanes	2
Driving lane width (ft)	12
Number of parking lanes (side)	0
Sidewalks (side)	0
Number of shoulders provided	2
Shoulder width (ft)	5
Average daily traffic (2005 AADT)	11,800 | 10,200
Speed limit (mph)	30
Functional classification	"B" Minor Arterial
Available right-of-way (ft)	65

Roadway width includes driving lanes, parking lanes and shoulders. Where it varies, a representative value is used. Multiple AADT values for a street are provided when available.

Sample roadway summary for Interlachen Boulevard.

2005 ADT (average daily traffic) figures in the vicinity of Vernon Avenue and Eden Avenue. Please see Appendix A.9 for complete figures for Edina streets.

Designing on-street facilities

Guidance for configuration recommendations applying to on-street bicycle facilities was obtained from accepted practice and several resources including the Minnesota Department of Transportation Bikeway Facility Design Manual.

In general, this Plan recommends provision of minimum 5 ft wide bicycle lanes wherever Primary routes are located in streets with speed limits of 30 mph or above and with average daily traffic (ADT) volumes exceeding 1,000 vehicles in two lane roads or 2,000 vehicles in four lane roads. Where ADT exceeds 5,000 vehicles in two lane roads or 10,000 vehicles in four lane roads, this Plan recommends a minimum provision of 6 ft bike lanes along those roads. Additional guidance on this topic can be found in Appendix A.6 of this Plan.

2.2 Recommended routes: Prioritization and hierarchy

This Plan recommends establishing a Primary and Secondary network of bicycle routes as a way of aiding understanding and implementation of Edina's bicycle transportation network.

Primary routes

Primary routes are those that provide:

- Connection to regional assets and convenient travel to points outside Edina
- Easy access to major destinations within the city
- A network of routes to access the City's schools and major recreational centers
- Connection to locations identified by the City of Edina 2008 Comprehensive Plan

In general, Primary routes are located within close proximity of population concentrations in Edina, and are easily accessed from surrounding areas (for example, they are not located adjacent to a freeway, where the freeway itself becomes a barrier to access).

Many Primary routes (with some notable exceptions like 77th Street), are at present already functioning informally like bike routes. A significant number of Edina cyclists can be observed on recommended routes like Wooddale Avenue, 44th Street, Vernon Avenue, 70th Street, and others. Most of these routes at present have sufficient room to accommodate potential reconfiguration for inclusion of bicycle facilities.

Primary routes are recommended for priority implementation.

Secondary routes

Secondary routes work in concert with Primary routes to establish a finer-grained network of routes and are most useful as means for reaching Primary routes and for some local trips. In many cases, these routes travel through residential neighborhoods and offer opportunity for extending the reach of Primary routes to ensure maximum usability and access to this transportation network for Edina residents. Guidance for implementation and wayfinding measures is provided in the following chapters.

On routes: a caveat

The process of selecting and recommending specific streets for Edina's bicycle transportation network necessarily entails choosing among alternatives, and finding compromises that respond to the need to maximize safety, comfort and convenience for cyclists of all skill levels while minimizing distance, delay, or unfavorable travel conditions.

Care has been taken to include those streets that can help provide safe and convenient access to schools, recreation centers, and access to shopping and entertainment destinations.

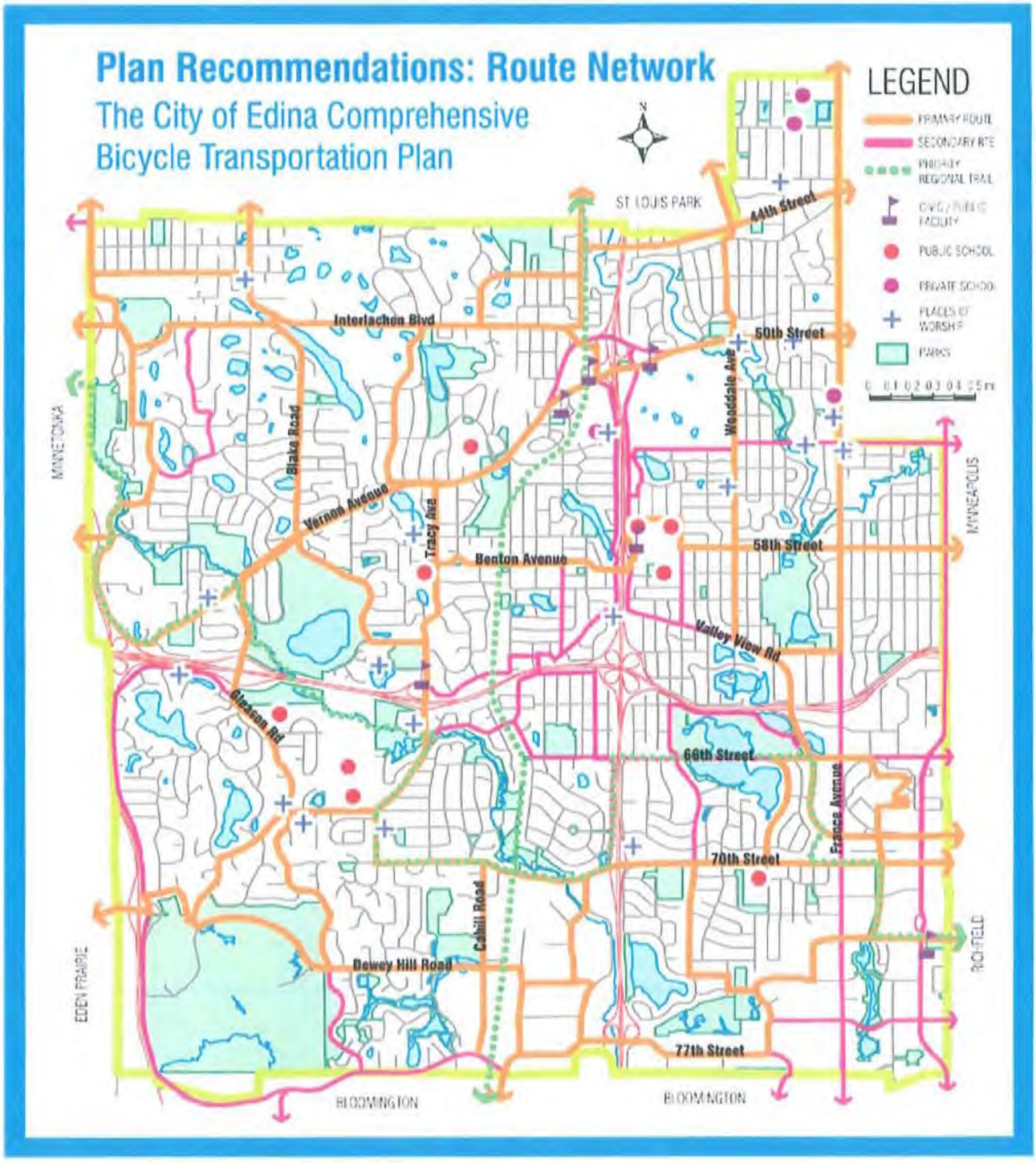
The choices presented in this chapter as primary components of bicycle circulation in Edina will allow us to focus resources and to more easily implement, communicate and encourage use of cycling to serve the greatest number of people, trips and destinations in and through Edina in the safest and most comfortable and convenient way.

Every street a safe street

The fact that a network of routes is identified and recommended for implementation in this Plan should not be interpreted as implying that travel on the rest of Edina's surface streets is deprecated. One of the central recommendations underlying this work is that every street in Edina must be safe and comfortable for cyclists, pedestrians, motorists and all other users.

Recommended Route Network

A map showing the recommended network of routes for Edina's bicycle transportation network is provided below. Routes are classified as part of a Primary or Secondary network; as discussed earlier, Primary routes are those that more directly provide connections to destinations within and outside Edina. Regional routes (the Canadian Pacific Regional Trail and the Nine Mile Creek Regional Trail) are included as a high priority component of this Plan.



Assessment of Network Functions

The proposed Primary route network meets the goals and objectives set out by the Bike Edina Task Force (BETF) and the City of Edina as guidance for this Plan.

Access to Destinations

The proposed Primary route network provides direct access to important destinations in Edina including 50th and France, Southdale Mall, 70th and Cahill, and 50th and Vernon, as well as providing connections to adjacent municipalities and regional trails including the Cedar Lake LRT Regional Trail.

Safe Routes to School

One of the purposes of this Plan is to improve provision of safe routes to school so that children may be able to safely ride there. To this end, this Plan recommends establishing a high quality core of routes serving schools in Edina.

This core of routes is formed by several Primary routes, including Benton Avenue on the north; Tracy Avenue, Valley View Road and Antrim Road on the east; 70th Street on the south; and Cornelia Drive, 66th Street, Valley View Road and Concord Avenue on the east. These core routes include streets providing some of the best cycling conditions in Edina today (with some exceptions), and, linked together, form a circulation pattern that allows a rider relatively easy access to and between all four Edina quadrants as well as proximity to major destinations.

Functioning as a kind of hub, these routes provide direct service to seven of the City's nine public schools, including the City's high school and its two middle schools (where students are of an age when parents are more likely to feel comfortable letting them ride to school on their own). Working in concert with the rest of the recommended Primary routes, this hub will provide safe and convenient access to schools and parks, including the Edina Aquatic Center (one of the top destinations sought by children and families).

The set of routes making up this hub are recommended for short-term, high priority implementation. The possibility of designating these group of streets as "Bike to School" routes and providing enhanced treatments should be explored.

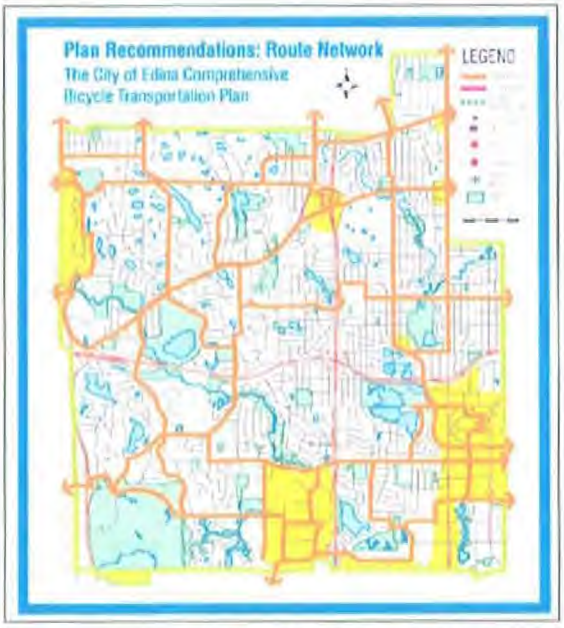
Primary routes (shown in orange) provide convenient connection to major retail and entertainment destinations in Edina.

A hub formed by several Primary routes helps provide safe access to Edina public schools. Schools (and 2006-2007 enrollment) is shown on the yellow circles; school core routes are shown in orange and green. The Edina Aquatic Center, another important destination for Edina children and families, is shown with a star.

Access to employment and growth centers

The Primary routes proposed by this Plan provide access to existing employment centers in Edina and to areas designated by the City of Edina 2008 Comprehensive Plan as potential areas of change, where the City anticipates new development will take place and where it foresees accommodating population and employment growth over the next decade.

Providing safe and convenient Primary route connections to these sites is consistent with the City's 2008 Comprehensive Plan Land Use policies, which include considering "how land use and transportation are integrated to ensure that new development and redevelopment expands non-motorized travel options."



Potential redevelopment areas in Edina are shown in yellow. The City foresees accommodating growth in employment and population in these areas. Primary bicycle routes are shown in orange.

2.3 General recommendations

These recommendations should be kept in mind when designing or implementing improvements to surface streets in Edina. Given that bicycles are legal vehicles for use on the same surface roads that automobiles travel on, many of these general recommendations revolve around clearly and consistently assigning space to automobiles and cyclists so that they may safely and comfortably coexist on Edina's roadways.

On Lincoln Drive.

Implement a "Complete Streets" design policy

"Complete Streets" is a design philosophy that considers the needs of all present and potential transportation network users.

Complete Streets laws and policies ensure that a community's roads and streets are routinely designed and operated to provide safe space and access for all users, including pedestrians, bicyclists, motorists and transit riders, and to ensure that they work for people of all ages and abilities, including older people, children, and people with disabilities.

Adopting a Complete Streets design policy will help ensure that all street construction and street improvement projects in the City of Edina anticipate and address the needs of cyclists, pedestrians and other users, regardless of whether a particular street is included within Edina's formally designated bicycle route network. Over the long run, embedding this Complete Streets approach into the City's normal operating procedures will do more for cyclists and pedestrians than any one specific plan could.

This Plan strongly recommends adoption of a Complete Streets policy and design approach as a priority for the City of Edina.

More on Complete Streets

You can find more resources on complete streets through the following organizations:

- Complete the Streets *(www.completestreets.org)*
- Walk and Bike for Life *(www.walkandbikeforlife.com)*
- The Pedestrian and Bicycle Information Center *(www.pedbikeinfo.org)*

A complete street provides safe and comfortable space for all roadway users.

Decrease the width of automobile lanes

Decreasing the width of automobile travel lanes can help calm traffic while freeing up valuable road space for bicycle lanes. The Institute of Transportation Engineers (ITE), in *Context Sensitive Solutions in Designing Major Urban Thoroughfares for Walkable Communities*, a study sponsored by the Federal Highway Administration (FHWA), recommends using a roadway's *target* (or desired) speed as guidance for the width of travel lanes provided.

In general (and consistent with AASHTO Green Book guidance), the study finds 10 ft travel lanes are suitable for local and collector streets with operating speeds to 30 mph, while lane widths from 10 to 11 ft are suitable for use in arterials with operating speeds to 35 mph.

Designate automobile space

Marking the right edge of the automobile driving lane (or "fog line") can help calm traffic and designate safe spaces for cyclists to ride on. This practice will in fact also increase safety for motorists as it will discourage automobiles from passing on the right, especially on wider roads and bridges.

Decrease automobile travel speeds

One of the factors that most influences cyclists' (and pedestrians') perceptions of the relative safety of a street is the speed of the automobiles that travel there. Streets with high speed limits are less welcoming to pedestrians or cyclists. Several streets which could serve as important bicycle routes in Edina are made less inviting by high speed limits currently in place. Vernon Avenue, for example, is posted as a 40 mile per hour road along some of its length.

City of Edina Engineering staff and leaders are currently working alongside City Engineers from other municipalities to lower statewide speed limits for local and collector streets to 25 mph. These efforts should be supported and continued. In the meantime, Minnesota statutes currently allow cities and other jurisdictions to lower speed limits to 25 miles per hour without need of any additional engineering or traffic study if a bicycle lane is provided. According to Minnesota Statute 160.263 Bicycle lanes and ways, Subdivision 4: "Speed on street with bicycle lane"

"Notwithstanding section 169.14, subdivision 5 , the governing body of any political subdivision, by resolution or ordinance and without an engineering or traffic investigation, may designate a safe speed for any street or highway under its authority upon which it has established a bicycle lane; provided that such safe speed shall not be lower than 25 miles per hour. The ordinance or resolution designating a safe speed is effective when appropriate signs designating the speed are erected along the street or highway, as provided by the governing body."

The three speeds of traffic

One of the biggest issues affecting bicyclists' (and pedestrians') comfort and safety is the speed of automobile traffic around them.

There is clearly a disconnection between the *design speeds of* our streets and roadways (how fast cars can travel and still make turns and meet sight distance requirements), a roadway's *posted speed limits* (how fast cars can legally travel), and that roadway's *actual speeds* (what motorists actually do). Needless to say, common experience is that for many streets, actual speeds are closer to design speeds than to posted speeds.

An effective way of decreasing a roadway's actual speeds is by providing visual cues to drivers that require them to slow down in order to feel appropriate control of their vehicle. Or, as the Institute of Transportation Engineers recommends in their Context-Sensitive Solutions (CSS) report:

"Context-sensitive solutions for the urban environment often involve creating a safe roadway environment in which the driver is encouraged by the roadway's features and the surrounding area to operate at lower speeds."

Narrowing travel lanes is one of the most effective tools to accomplish this. Many US cities, including the City of Chicago, now routinely narrow travel lanes down to 10 foot widths (and Chicago does so specifically to free up additional road space to provide bike lanes for cyclists).

Narrower lanes do not increase risk to motorists or present any adverse impacts on safety. In fact, they have even been used in Minnesota highway projects where lack of available right-of-way and cost constraints made standard freeway lane widths (12 ft) unattainable. Recently completed portions of Highway 100, for example, include 11 ft lanes where space available was limited.

Research and experience, including an upcoming NCHRP report, find there is no safety advantage to 12 or 11 foot lanes over 10 foot travel lanes where posted speeds are 35 mph or less.

Separate cyclists and pedestrians

Cyclists and pedestrians have different travel characteristics. Mixing both types of users in the same facility increases hazards to both. Designating bicycling space in sidewalks or side paths is not recommended as it increases the potential for crashes between bikes and pedestrians, and, by making cyclists less visible to motorists, puts cyclists at significantly greater risk of automobile crashes. Risk to cyclists is in fact 5 times greater when riding on sidewalks than when riding on a street, even if that street has no bike facilities at all.

Provide on-street bike facilities

Providing bike lanes invites additional riders and greatly improves safety for cyclists, decreasing risk to cyclists by half (over riding in a similar street without lanes). A street with bike lanes is in fact safer to ride on than shared-use or recreational paths (because of greater potential for bicycle-pedestrian conflicts on those paths).

Check interactions between traffic calming and cycling space

Calming automobile traffic through neighborhoods and commercial areas is an important goal, and one that brings benefits to pedestrians and cyclists. Sometimes, however, traffic calming measures can negatively impact cyclists, especially if they include physical barriers or changes in road configuration that narrow or remove space that could accommodate bicycles. Other options for traffic calming, including painting lane limits and decreasing lane widths can yield the same traffic calming benefits without decreasing space for bicycles. Marking bike lanes on a street is in fact a traffic calming measure because doing so reduces the amount of road space available to automobiles, providing visual cues to motorists that help decrease average speeds and their variability. All proposed traffic calming measures in Edina should be reviewed for their potential impact on bicycle conditions.

Bike facility relative danger index

A comparison of relative risk of injury due to collisions for several types of facilities that cyclists commonly ride on. Median risk is 1.0:

Type	Risk index
Major streets, no bike lanes	1.28
Minor streets, no bike lanes	1.04
Streets with bike lanes	0.5
Shared-use paths	0.67
Sidewalks and sidepaths	5.32

Source: William Moritz, University of Washington: "Survey of North American Bicycle Commuters: Design and Aggregate Results," Transportation Research Board, Vol 1578, 1997.

Some traffic calming measures that physically narrow the roadway make it more difficult for cyclists to arrive at an intersection and be noticed by automobiles before entering it. Using paint to channel traffic preserves space for cyclists and is cheaper, too. Pictured: 65th Street, near Valley View Road.

2.4 Recommended treatments

Improving Edina's bicycle infrastructure will require making physical changes that provide additional space for cyclists, establish route designations, and enhance the functioning of traffic signals to better accommodate the needs of cyclists.

The purpose of this chapter is to provide a guide to the types of improvements that are recommended for implementation in Edina, to provide a means to prioritize short, medium, and long-term improvements, and to provide an illustration of what these improvements could look like when implemented - how much space they would require, and where and how they would be located.

It is important to note that these sample treatments are presented as concepts that will require further investigation before implementation - these are not final designs, but preliminary recommendations that have a high potential for improving cycling conditions given the constraints and conditions present in specific places and streets in Edina.

It is also important to note that the improvements presented in this chapter are not meant to include every single street that is recommended as part of Edina's Primary and Secondary bicycle transportation network, and that the choices for types of treatments are similarly not meant to include every single possibility that could be applied (for a more exhaustive list of potential treatments, please see Appendix A.3 Types of bicycle facilities).

Decisions on final configurations and treatments will have to be made during the Plan's implementation, and will require the guidance of the City of Edina's Bicycle Advisory Committee and Bicycle Coordinator (recommended in Chapter 3.2) so that final designs can be integrated and coordinated with other concurrent bicycle transportation and roadway improvement projects.

When phasing is discussed, short-term is used to indicate implementation within 2 years of Plan adoption, while medium-term is 2 to 4 years forward and long-term is 4 to 7 years into the future.

The blue bike lane and sign (on upper right) alert motorists to yield to cyclists when driving over the bike lane to enter the right turn lane.
Photo: Portland, Oregon.

2.4.1 Sample treatment options

A brief overview of some of the improvements recommended over Edina's bicycle network, along with a brief listing of specific locations where they are to be applied, is given below. A more complete list of bicycle network improvements in use in the US and abroad is included in Appendix A.3 Types of bicycle facilities.

Effective bicycle route signing includes destination, direction and distance elements. Photo: Portland, Oregon.

Bike route signs

Bike route signs direct cyclists to their destination, guide them through neighborhoods efficiently and also alert motorists to the presence of cyclists on the road. Bicycle route signs in Edina should include distance, direction and destination information.

Where to apply them

- Bike route signs are recommended for installation over Edina's entire Primary network.
- Their installation should be done over the short term. They can immediately be applied on streets that provide enough room for cyclists at present. Streets needing additional improvement before bicycling is comfortable should first be improved and then signed.

Route dots

Bicycle "route dots" are small wayfinding symbols painted on the pavement along bicycle routes where they pass through residential or low traffic areas, especially where the route does not follow an obvious road (for example, where a route goes through several turns in a residential neighborhood).

This route dot tells a cyclist to veer to the right to remain on this route. Photo: Portland, Oregon.

Where to apply them

- Route dots are recommended for installation over Edina's Primary and Secondary bike network.
- Route dots should be applied where a route requires a cyclist to choose between multiple directions and in the absence of other treatments that would also serve a wayfinding function such as bicycle lanes or sharrows (shared lane arrows).

Bike Lanes

Bike lanes delineate road space for exclusive use by cyclists. The minimum width recommended for implementation of on-street bike lanes in Edina is 5 ft wide. Please see Appendix A.6 and A.7 for additional resources and guidance on bike lane treatments.

Bike lanes are typically striped along the surface of existing roads, either adjacent to the curb or to on-street parking. Integral bike lane-gutter pan curbs provide an extra-wide gutter pan that also serves as a bike lane and avoids the gutter pan-pavement seam that often decreases the available lane width available for cycling. Because these curbs are built of concrete, they typically provide additional contrast for the bike lane when built adjacent to asphalt pavements.

Six foot wide bike lane on an integral bike lane-gutter pan curb design. Use of concrete next to an asphalt roadway brings additional contrast to the lane.
Photo: Lowry Avenue, Minneapolis.

Where to apply them

- Bike lanes are recommended for all streets included in the Primary route network recommended by this Plan, including Benton Avenue; 70th Street; Tracy Avenue; Vernon Avenue; Eden Avenue; Interlachen Boulevard; and Dewey Hill Road, among others
- Bike lanes should be painted or provided using contrasting materials along designated "Bike to School" routes

Blue Lanes

Blue lanes are short, painted sections of bike lanes that are located in places where potential crossing conflicts between automobiles and bicycles may occur.

Recommended blue lane treatment on 70th Street near Highway 100.

Where to apply them

- At locations where freeway entrance and exit ramps cross a road where a bike lane is present. In Edina, they are recommended at Benton Avenue and Highway 62; at Tracy Avenue and Highway 100; 70th Street and Highway 100; and Valley View Road and Highway 62, among others
- Where it is important to alert drivers of the potential presence of cyclists in locations where multiple turning movements require an automobile to cross over a bike lane (for example to enter a right-turn lane). In Edina, they are recommended on 66th Street, 70th Street and Valley View Road near Southdale Mall; on 70th Street near Metro Boulevard; and on the eastern segments of Valley View road near Highway 62, among others

Bicycle Loop Detectors

Bicycle loop detectors help cyclists cross busy intersections and multi-lane roads by recognizing the presence of bikes and tripping signal changes at traffic lights. They are often combined with pavement markings to encourage cyclists to position their bikes where they can be detected. Improving detection of bikes at intersections will help improve cyclist safety and convenience.

A cyclist positioning his bike over a bicycle loop detector to trip a traffic signal. Photo: Portland, Oregon.

Where to apply them

- Bicycle loop detectors and pavement markings should be applied wherever a Primary route crosses a multi-lane road, including near France Avenue and Valley View Road south of highway 62, among others

Underpasses

In general, this Plan does not recommend construction of underpass or overpass structures, recommending instead that surface roads be improved to safely handle cyclists. Many underpasses provide unfriendly conditions that deter cyclist use, while overpasses typically require a significant amount of effort to climb and traverse. Both are also expensive to build.

It is important to note that underpass structures can be designed to be more inviting and comfortable.

An improved tunnel under York Avenue should be more spacious and comfortable.

Where to apply them

- The underpass structure currently existing under York Avenue and providing movement into Richfield just east of Centennial Lakes is in bad condition and does not provide sufficient space (or light) for comfortable use, especially to accommodate additional travel over this Primary route. This structure should be replaced with a more suitable design following guidance from the Minnesota Department of Transportation Bikeway Facility Design Manual

2.4.2 Overview of recommended street configurations

This Chapter provides a brief overview of recommended preliminary configurations and treatments for selected streets making up Edina's Primary bicycle route network.

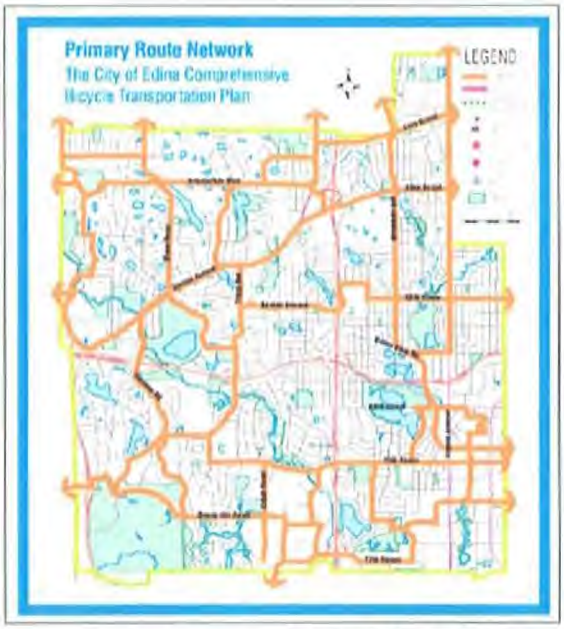
The configurations included in this chapter are presented for illustration purposes only. They are not meant to include every single street that is recommended as part of Edina's Primary route network. Similarly, the choices for types of treatments are not meant to include every single possibility that could be applied.

Preliminary recommendations are made following the methodology presented in Chapter 2.1.

Decisions on final configurations and treatments will have to be made during the Plan's implementation, and will require the guidance of the City of Edina's Bicycle Advisory Committee and Bicycle Coordinator, as well as the participation of the City's Engineering and Public Works Department.

Streets are presented in alphabetical and then numerical order. Improvement recommendations are phased over the short, medium and long-term.

A cyclist riding near Gleason Road. Although this street presently provides enough space to accommodate cyclists, lack of on-street facilities discourages riding on the road.



Routes recommended for Edina's Primary route network (shown in orange). The full network, including Secondary routes, is described in Chapter 2.2.

Antrim Road

Antrim Road currently presents excellent cycling conditions. Automobile traffic moves along at a reasonable pace, and the street's wide parking lanes (on both sides) function almost like bike lanes.

Southbound on Antrim Road today.

Recommended treatments

Two options are provided, relating to the present provision of on-street parking on both sides of the street. This street is part of the "Bike to School" bike route network discussed in Chapter 2.2.

Short / immediate term

- Sign the route using recommended design; include markings designating this street as a "Bike to School" route
- Delineate right edge of driving lane ("fog line") to limit automobile displacement. Driving lanes should be 10 ft wide
- Alternative A: If keeping parking on both sides of the street, parking lanes should be 7 ft wide. Provide two bike lanes, 5 ft wide each (minimum)
- Alternative B: If parking can be consolidated on one side (the east side is recommended in order to more conveniently serve church and shelter pedestrians on sidewalk), parking lane should be 9 ft wide. Provide two bike lanes, each 7.5 ft wide (minimum)

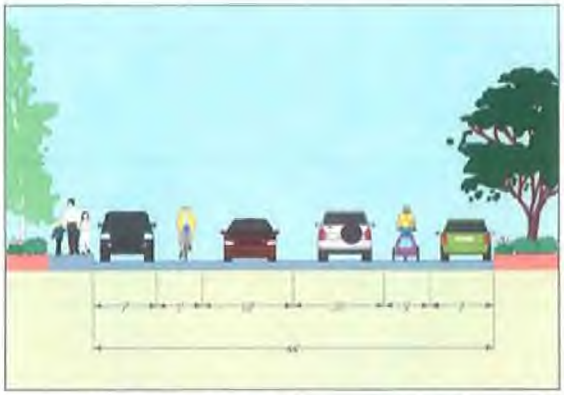
Medium to long term

- Consider application of colored pavement to mark bike lanes as a "Bike to School" route
- Consider installation of integral bike lane-gutter pan curbs

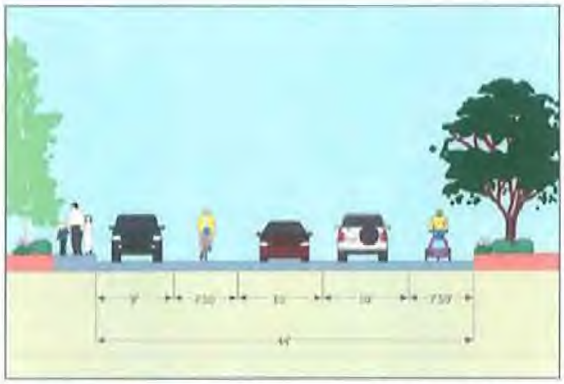
Longer term

- If Alternative B is chosen, roadway cross-section can be reduced in the future and provide a 4 ft planted boulevard adjacent to sidewalk on eastern side of street (to decrease impermeable area and improve aesthetics and pedestrian orientation). Parking lane should be 8 ft wide and bike lanes should be 6 ft wide (minimum)

Two potential configurations for Antrim Road:



Alternative A: Parking on both sides, with space for cyclists and automobiles within the existing roadway.



Alternative B: Parking on one side, and space for cyclists and automobiles.

Benton Avenue

Benton Avenue is fairly wide and generally calm, presenting good cycling conditions along its length. The bridge over Highway 100 provides much more automobile road space than is currently necessary.

Westbound on Benton Avenue, approaching the bridge over Highway 100.

Recommended treatments

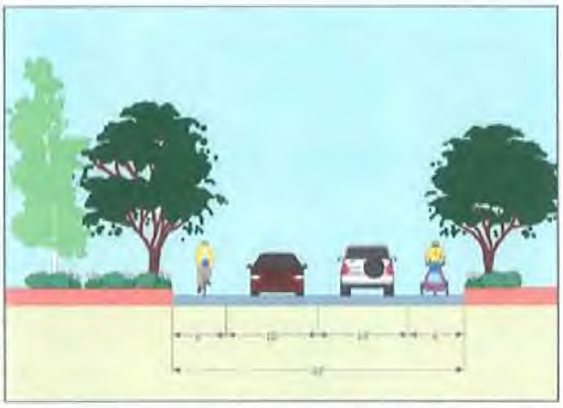
This street is part of the "Bike to School" bike route network discussed in Chapter 2.2.

Short / immediate term

- Sign the route using recommended design; include markings designating this street as a "Bike to School" route
- Delineate right edge of driving lane ("fog line") to limit automobile displacement. Driving lanes should be 10 ft wide
- Stripe two 6 ft wide (minimum) bicycle lanes

Medium to long term

- Apply blue bike lanes near Highway 100 exit and entrance ramps
- Consider application of colored pavement to mark bike lanes as a "Bike to School" route
- Consider installation of integral bike lane-gutter pan curbs



Recommended roadway configuration for Benton Avenue.

Dewey Hill Road

Dewey Hill Road presents excellent cycling conditions and provides convenient east-west connections between Braemer Park, Lewis Park, Cahill Road (with access to 70th and Cahill), and Metro Boulevard. This street connects one of the areas considered for more intense mixed-use development by the 2008 Comprehensive Plan.

Eastbound on Dewey Hill Road. The sidewalk on this street is a popular walking route.

Recommended treatments

Short / immediate term

- Sign the route using recommended design
- Delineate right edge of driving lane ("fog line") to limit automobile displacement. Driving lanes should be 10 ft wide
- Stripe two 5 ft wide (minimum) bicycle lanes

Medium term to long term

- Consider installation of integral bike lane-gutter pan curbs

Eden Avenue

Eden Avenue is a comfortable biking street, and is a more inviting option for connecting Vernon Avenue to 50th Street than travelling over those streets near Highway 100. It provides good access to Grandview Square and is a potential access point for the recommended Regional Canadian Pacific Trail. A Park and Ride facility between Vernon and Eden is in early phases of concept development.

Recommended treatments

Short / immediate term

- Sign the route using recommended design
- Delineate right edge of driving lane ("fog line") to limit automobile displacement. Driving lanes should be 10 ft wide
- Stripe two 6 ft wide (minimum) bicycle lanes

Medium to long term

- Consider application of colored pavement to mark bike lanes
- Consider installation of integral bike lane-gutter pan

Interlachen Boulevard

Interlachen Boulevard presently provides an uncomfortable environment for cyclists. High vehicle speeds, lack of bicycle facilities, and poor condition of shoulders work against use of this important route.

A configuration accommodating cyclists and pedestrians on an 8 ft sidewalk (proposed by others) was recently rejected by the Edina City Council as it created hazardous conditions and did not meet recommended practice.

Recommended treatments

Short / immediate term

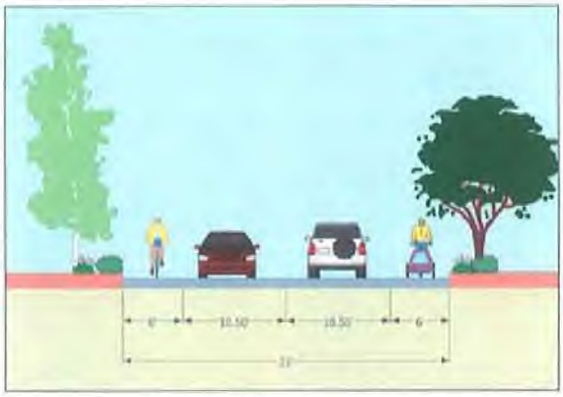
- Repair shoulders
- Decrease width of automobile travel lanes to 10.5 feet
- Sign the route using recommended design
- Stripe two 6 ft bike lanes on paved shoulders

Medium term to longer term

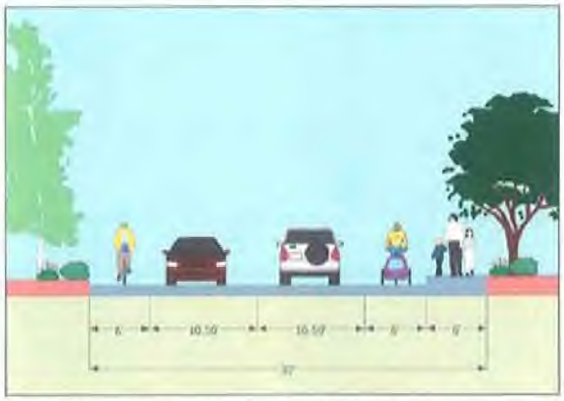
- Consider installation of integral bike lane-gutter pan curbs
- Provide pedestrian facilities on one or both sides of the road

Deteriorated roadway shoulders present a hazardous condition for cyclists along Interlachen Boulevard.

Two potential cross-sections for Interlachen Boulevard:



Alternative A: Space for cyclists and automobiles within the existing roadway.



Alternative B: Space for cyclists, pedestrians and automobiles.

Gleason Road

Gleason Road provides good connections between Vernon Avenue to Edina's southern border, and travels along the edge of important Edina parks, including Bredesen and Braemar Park. The portion between Vernon Avenue and Dewey Hill Road is designated as a Primary route.

Hazardous grate on Gleason Road.

Recommended treatments

Short / immediate term

- Replace hazardous grates with approved design
- Sign the route using recommended design
- Delineate right edge of driving lane ("fog line") to limit automobile displacement. Driving lanes should be 10 ft wide
- Stripe two 6 ft wide (minimum) bicycle lanes

Medium to long term

- Apply blue bike lanes near Highway 62 exit and entrance ramps
- Consider application of colored pavement to mark bike lanes
- Consider installation of integral bike lane-gutter pan

Southbound on Tracy, south of Benton (past Countryside Elementary School).

Tracy Avenue

Tracy Avenue presents good cycling conditions along its length, and also provides important connections to points north.

Recommended treatments

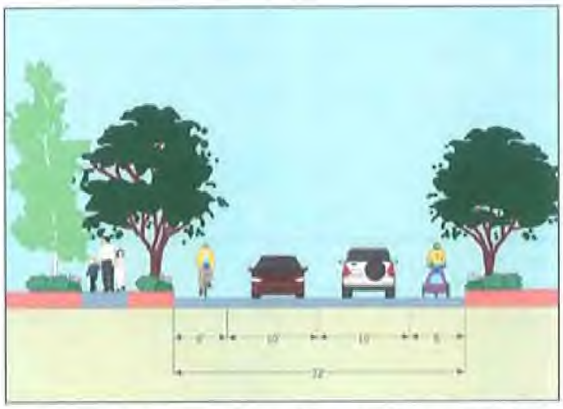
This street is part of the "Bike to School" bike route network discussed in Chapter 2.2.

Short / immediate term

- Sign the route using recommended design; include markings designating this street as a "Bike to School" route
- Delineate right edge of driving lane ("fog line") to limit automobile displacement. Driving lanes should be 10 ft wide
- Stripe two 6 ft wide (minimum) bicycle lanes

Medium to long term

- Consider application of colored pavement to mark bike lanes as a "Bike to School" route
- Consider installation of integral bike lane-gutter pan curbs
- Apply blue bike lanes at Highway 62 entrance and exit ramps



Recommended roadway configuration for Tracy Avenue.

Valley View Road (West segment)

The western segment of Valley View Road provides reasonable cycling conditions along its length, and provides access to Edina High, Valley View Middle School, and the Performing Arts Center.

Recommended treatments

This street is part of the "Bike to School" bike route network discussed in Chapter 2.2.

Short / immediate term

- Sign the route using recommended design; include markings designating this street as a "Bike to School" route
- Delineate right edge of driving lane ("fog line") to limit automobile displacement. Driving lanes should be 10 ft wide
- Stripe two 6 ft wide (minimum) bicycle lanes

Medium term to Long term

- Consider application of colored pavement to mark bike lanes as a "Bike to School" route
- Consider installation of integral bike lane-gutter pan curbs

Southbound on Valley View Road, south of Highway 62 and west of Highway 100.

Vernon Avenue (south of Villa Way)

This portion of Vernon Avenue provides important connections to other Primary routes including Gleason Road, Olinger Boulevard and Tracy Avenue. It also provides important access to Bredesen, Garden, and Walnut Ridge Park. Posted automobile speed limits on this portion of Vernon Avenue, between Villa Way and View Lane, are 40 miles per hour.

Recommended treatments

Short / immediate term

- Decrease speed limits to 30 mph
- Sign the route using recommended design
- Delineate right edge of driving lane ("fog line") to limit automobile displacement. Driving lanes should be 10 ft wide
- Stripe two 6 ft wide (minimum) bicycle lanes

Medium term to Long term

- Apply blue bike lanes where right-turn lanes are provided

Two views of Vernon Avenue:

As it is today ...

... And as it could be with minimal investments and using the street's existing configuration.

Wooddale Avenue

Wooddale Avenue presently provides a comfortable bicycling environment. A pleasant street going through residential neighborhoods, it provides convenient access to 58th, 50th and 44th Street.

Wooddale Avenue today.

Recommended treatments

Given present automobile speeds, traffic volumes and cyclist use of this important route, a pair of 5 ft bicycle lanes is recommended. However, given existing provision of on-street parking and other space constraints, the following are recommended:

Short / immediate term

- Sign the route using recommended design
- Consider removing on-street parking

Medium term

- Stripe two 5 ft wide bicycle lanes

44th Street

44th Street presents pleasant cycling conditions today. It connects Brookside Avenue to commercial nodes at 44th and France and further east in Minneapolis.

Along 44th Street today.

Automobile traffic moves at a reasonable pace, and although the geometry of the road is relatively narrow, sufficient space is available to accommodate cyclists. There is sporadic use of on-street parking. Mature trees grow adjacent to the existing curb. The gutter-pavement joint is in need of repair for some of this street's length.

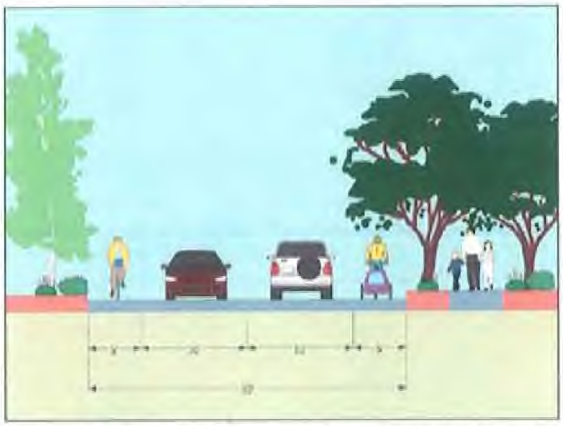
Recommended treatments

Short / immediate term

- Sign the route using recommended design
- Repair curb-pavement joints.
- Consider removing on-street parking

Medium term

- Stripe two 5 ft wide bicycle lanes



A potential cross-section for 44th Street.

58th Street

58th Street presents pleasant cycling conditions today. Relatively low automobile traffic volumes and reasonable speeds contribute to comfortable conditions, even within the relatively narrow geometry of the road. On-street parking is not allowed. The portion of 58th Street closer to Concord Avenue has been recently repaved. Much of the eastern portion of this street does not have curb and gutter installed.

Along a recently repaved portion of 58th Street.

Recommended treatments

Short / immediate term

- Sign the route using recommended design

Medium term

- Stripe two 5 ft wide bicycle lanes

70th Street (East of Highway 100)

70th Street provides important east-west movement through Edina, connecting major destinations including Southdale Mall and the area of 70th and Cahill with other Primary routes. This portion of 70th Street presents relatively pleasant cycling conditions today.

Along 70th Street today.

Recommended treatments

This street is part of the "Bike to School" bike route network discussed in Chapter 2.2. It provides access to Cornelia Elementary School, Arneson Acres Park, and connection through Cornelia Drive to the Edina Aquatic Center.

Short / immediate term

- Sign the route using recommended design; include markings designating this street as a "Bike to School" route
- Delineate right edge of driving lane ("fog line") to limit automobile displacement. Driving lanes should be 10 ft wide
- Stripe two 6 ft wide (minimum) bicycle lanes

Medium to long term

- Consider application of colored pavement to mark bike lanes as a "Bike to School" route
- Provide bicycle signal for crossing France Avenue
- Apply blue bike lanes in vicinity of Highway 100 and where right-turn lanes are provided

2.5 Regional routes

A growing network of dedicated bicycle trails is providing increasing access to transportation and recreation options for bicycle commuters, recreational cyclists and walkers in our region.

Usually located on re-dedicated railroad rights-of-way, the trails offer safe and inviting car-free cycling environments that equally allow experienced and novice riders to use cycling as a convenient option for travel between and within communities.

Notable examples in our region include the Midtown Greenway, in Minneapolis; the Cedar Lake LRT Regional Trail in St. Louis Park; the Kenilworth Trail and others.

Unfortunately this network of trails currently bypasses Edina, hindering easy access to regional assets and potentially discouraging increased participation of Edina citizens in the enjoyment of a safe, convenient and healthful activity.

This Plan strongly recommends developing dedicated connections to this network. The Regional Canadian Pacific Trail and the Nine Mile Regional Trail, two projects that have recently been the subject of initial study, are here explored in more detail and are strongly recommended for implementation.

This Plan also strongly recommends more fully exploring opportunities for concurrent integration and improvement of both trails with Edina's recommended bicycle transportation network, and involving the participation and guidance of the City of Edina's Bicycle Advisory Committee and Bicycle Coordinator (recommended in Chapter 3.2).

Our region's trails help provide transportation and recreation opportunities to cyclists, walkers, skaters and wheelchair users.

Existing on and off-street bicycle trails in southeastern Hennepin County.

2.5.1 The Regional Canadian Pacific Trail (RCPT)

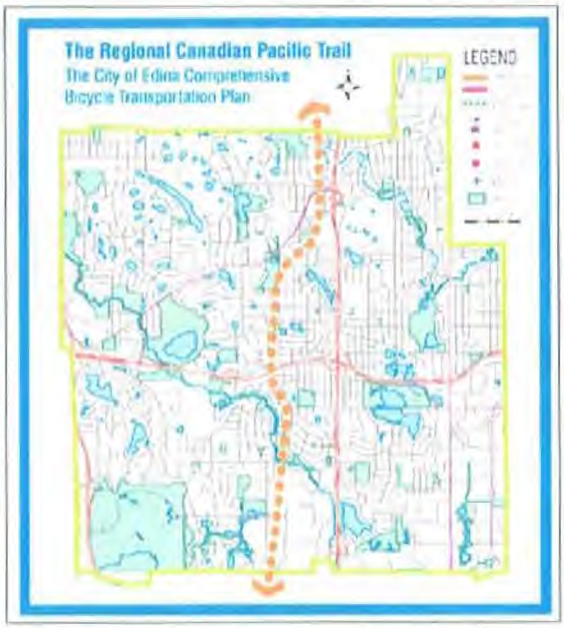
Development of the Regional Canadian Pacific Trail (RCPT) is a priority for this Plan and for the City of Edina.

The Regional Canadian Pacific Trail is a proposed shared-use, grade-separated bicycle and pedestrian facility running north and south through Edina within the Canadian Pacific Railroad's existing right-of-way. The facility would provide a direct and convenient connection to existing and planned regional bicycle network facilities outside of Edina, including the Cedar Lake LRT Regional Trail. It would also provide a direct link to the adjoining communities of Bloomington and St. Louis Park.

The Regional Canadian Pacific Trail would additionally provide a safe and direct connection to residential, commercial and industrial areas in Edina.

Functioning in combination with the other routes proposed in this Plan, the Regional Canadian Pacific Trail would allow Edina residents easy access to employment and commercial centers in Edina and in surrounding communities, offering faster travel times and safer routes for cyclists and pedestrians.

An additional benefit is that the trail, being a safe and inviting car-free cycling environment, could potentially increase the number of cyclists in Edina and surrounding communities by encouraging recreational and novice cyclists to consider bicycle mobility as a real and potentially convenient transportation choice.



Proposed alignment for the Regional Canadian Pacific Trail (shown in orange).

The Regional Canadian Pacific Trail would provide convenient connections to trails and destinations in our region.
Photo: Looking south to the CP rail line from 70th Street.

Trail Concept

The Regional Canadian Pacific Trail (RCPT) is intended to function as a north-south connection for bicycle commuters and as a recreational trail. Because the RCPT would be implemented within a limited right-of-way adjacent to an active railroad line, it is important that its configuration provide sufficient space for safe utilization by all users, including cyclists, pedestrians, skaters and wheelchair users. Minimizing conflicts between pedestrians and cyclists will increase utilization by both types of users and serve the long-range goals of maximizing use of bicycle network investments.

The proposed trail design includes a six-foot pedestrian lane, a seven-foot northbound bicycle lane, a seven-foot southbound bicycle lane and a two-foot green median separating the bicycle and pedestrian lanes. This design enables all trail users to coexist safely within the Canadian Pacific Railroad existing sixty-six foot right-of-way.

A proposed cross-section for the Regional Canadian Pacific Trail.

Design Considerations

The following issues should be considered in greater detail as options for the RCPT's configuration are refined:

- Need to potentially accommodate high numbers of cyclists
- Need to accommodate bicycle trailers, adult tricycles (please see Chapter 1.4), and tandem bikes
- Providing separate facilities for pedestrians and cyclists helps reduce potential hazards
- RCPT right-of-way is currently utilized for low-volume freight transport
- Portions of the trail encounter narrow right-of-ways
- Although most of the RCPT's extent runs through developed portions of Edina, a portion of the trail runs through areas that are designated for more intense development in the City's 2008 comprehensive Plan (including the Vernon and 50th area and the area near Ohms Lane, Bush Lake Road and Edina Industrial Boulevard). Strong connections to cycling transportation options should be encouraged as new mixed use and employment uses are allocated to these sites.

Active rail freight operations and cyclists can easily and safely coexist, even within a limited right of way.
Photo: The Midtown Greenway, east of Hiawatha Avenue, in Minneapolis.

Operations and Maintenance

In order to maximize utilization of this important transportation investment, the trail is envisioned as a 24 hour, 365 day per year route (much like the Midtown Greenway in Minneapolis, for example). As such, it is recommended that the entire length of the trail be well lit, adequately maintained, and plowed during the winter months.

Partnership agreements or a hybrid approach should be explored between the City of Edina and the Three Rivers Park District in order to ensure effective year-round maintenance, including the prompt pick up of litter and debris, and the removal of snow and ice during winter months. Additionally, it is recommended that the City of Edina Police Department and the Three Rivers Park District Police either jointly or through agreement handle the policing of the trail (the use of bicycle patrols is encouraged).

Environmental considerations

Given that the trail will also be an important recreational, natural and aesthetic amenity for the City of Edina, it is recommended that the trail be landscaped (using native varieties where possible) for aesthetic and environmental reasons. It is recommended that the City of Edina be responsible for the management of the trail and the surrounding vegetation.

Community and agency support

As envisioned, the Regional Canadian Pacific Trail will provide connections to residential areas, schools, parks, and other planned city trails and regional trails. Given that Edina has a demonstrated need for more trails, citizens of Edina and Edina cycling organizations have expressed strong support for development of this facility.

Additionally, there is wide support from elected representatives and public agencies for implementation of this trail.

Supporting agencies and bodies include:

- The Edina City Council
- The Three Rivers Park District
- Hennepin County
- The City of St. Louis Park, the City of Bloomington, and other surrounding municipalities

Implementation partners

Successful implementation of the RCPT will require coordination and cooperation between multiple communities and stakeholders including the City of Edina, the City of St. Louis Park and the City of Bloomington, as well as the Canadian Pacific railroad, the Three Rivers Park District, citizen advisory groups from Edina and other communities, and advocacy groups including the Rail to Trails Conservancy and Transit for Livable Communities.

Cyclists riding through the Midtown Greenway in Minneapolis at dusk on a mid-May evening. The Midtown Greenway is lit at night and equipped with security measures (including blue emergency call boxes and cameras linked to the Minneapolis Police Department precinct offices) to increase safety and comfort for users. Similar measures are recommended for the RCPT.

2.5.2 Nine Mile Creek Regional Trail

The Nine Mile Creek Regional Trail is a proposed shared-use bicycle and pedestrian facility running through Edina, generally from the northwest corner to the southeast corner of the city. The trail, currently under consideration by Three Rivers Park District, would include a combination of segments running along both surface roadways and public park land.

Development of this facility is recognized as a priority by this Plan and by the City of Edina, as it would provide safe and convenient connections to existing and proposed regional bicycle routes including the Cedar Lake LRT Regional Trail, and to the adjacent communities of Hopkins, Richfield and Bloomington.

Functioning in concert with other routes proposed in this Plan, the Nine Mile Creek Regional Trail would improve bicycle access to employment and commercial centers in Edina and adjoining communities while offering a safe and pleasant recreational space for bicyclists and pedestrians. The Trail would also directly connect Edina citizens to the Three Rivers Park District's regional system of parks and recreational trails.

Aerial view showing the Three Rivers Park District's recommended alignment for the Nine Mile Creek Regional Trail.

Trail Concept

The Nine Mile Creek Regional Trail is intended to expand the current regional trail system and improve bicycle and pedestrian mobility and recreation options to communities in the region.

Among the goals guiding the implementation of this facility are the following (as stated in the Three Rivers Park District Nine Mile Creek Regional Trail Master Plan Draft, December 2006):

- Link local neighborhoods to regional parks and trails.
- Provide non-motorized links to destination schools, neighborhood and regional parks, community institutions, commercial centers and transit nodes.
- Balance recreation opportunities with natural resource impacts and value.
- Provide links to major employment nodes, including commercial redevelopment sites.
- Provide links for underserved neighborhoods.
- Provide connections into neighboring cities.
- Provide safe crossings of high volume roadways and railroads.

Design Considerations

The most recent draft of the Master Plan for the Nine Mile Creek Regional Trail, prepared by Three Rivers Park District, proposes a 10 ft wide cross-section for the trail to serve two-way bicycle traffic, pedestrians and other users. In locations where width is constrained (due to right-of-way and adjacent landowner issues), the trail is proposed to narrow to an 8 ft wide cross-section.

Opportunities to work collaboratively with Three Rivers Park District to enhance the currently proposed configuration should be explored.

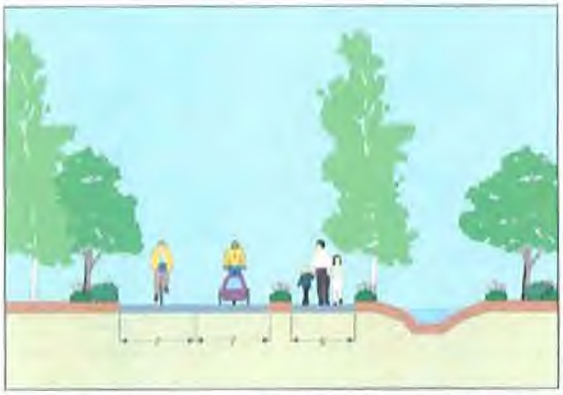
Given that the Nine Mile Creek Regional Trail passes through and connects Edina residential neighborhoods, shopping and entertainment destinations, employment centers and recreational assets, it is foreseeable that the trail will experience high levels of ridership through the city. It is also likely that the currently proposed cross-section will not be sufficient to safely and comfortably accommodate the potential number of cyclists and other users it will attract.

Some issues that might require reconsideration of the trail's currently proposed configuration include the need to accommodate potentially high numbers of bicycle riders, the need to accommodate bicycle trailers, adult tricycles (please see Chapter 1.4) and tandem bikes, and the need to improve safety and reduce hazards to all users by separating cyclists from pedestrians (and skaters and wheelchair users) on the trail. Addressing these potential conflicts before the trail is built will help maximize usability and use of this important transportation and recreation investment.

This Plan proposes an alternative cross-section for this important trail. Although obstacles exist in some locations, a preferred trail configuration would provide a minimum of two 7 ft wide lanes for cyclists and one 6 ft wide path for pedestrians wherever possible.

Additionally, it might be beneficial to explore alternatives to the currently proposed alignment over the portion where it travels along Normandale Road to 66th Street, as there is opportunity to jointly locate this portion of the alignment with the Primary Route this Plan proposes along 70th Street and which serves Arneson Acres Park, Cornelia Elementary School, and easily

Combining pedestrians and cyclists in high-use regional trail facilities results in hazardous conditions for both types of users and decreases the utility of important transportation investments. Photo: Burke-Gilman Trail in Seattle, Washington.



A recommended alternative cross-section for the Nine Mile Creek Regional Trail which provides comfortable space for safe utilization by all users.

connects with the Edina Aquatic Center along Cornelia Drive, and with Southdale Mall along both 66th Street and 70th Street. Making these changes is consistent with the Nine Mile Creek Regional Trail Goals presented in the Trail Concept section above, especially with the stated goal of *"[providing] non-motorized links to destination schools, neighborhood and regional parks, community institutions, commercial centers and transit nodes."*

Operations and Maintenance

Maintenance practices and trail conditions significantly influence bicycle riders' choices for routes and, more broadly, also influence the perception of bicycle commuting as a potential transportation option. They also have a major impact and influence on trail user safety, trail user experience, and environmental and natural resources protection.

In order to maximize use of this important transportation investment, this Plan recommends that the Nine Mile Creek Regional Trail be implemented and maintained as a 24 hour, 365 day per year route. Recommended practices include lighting over the entire length of the trail and prompt plowing of snow and ice during the winter months.

Opportunities for shared maintenance of the trail should be explored with Three Rivers Park District, as current District policy is to not conduct any trail maintenance activities during the winter. Additionally, Three Rivers Park District typically reserves the right to close bicycle trails under its jurisdiction during winter months unless a maintenance and liability agreement is signed with another governmental body.

This Plan recommends that the City of Edina apply for a permit to operate the Nine Mile Creek Regional Trail for periods during which the Three Rivers Park District closes it to winter use.

It is also recommended that the City of Edina Police Department and the Three Rivers Park District Police either jointly or through agreement handle the policing of the trail (the use of bicycle patrols is recommended).

Environmental considerations

Given that the trail will also be an important recreational, natural and aesthetic amenity for the City of Edina, it is recommended that the trail be landscaped (using native varieties where possible) for aesthetic and environmental reasons. It is also recommended that Three Rivers Park District and the City of Edina explore joint responsibility for management of the trail and the surrounding vegetation.

Community and agency support

The Nine Mile Creek Regional Trail will provide connections to residential areas, schools, parks, and other planned city and regional trails. Citizens of Edina and Edina cycling organizations have expressed strong support for development of this facility. Additionally, there is wide support from elected representatives and public agencies for implementation of this trail.

Supporting agencies and bodies include:

- The Edina City Council
- The Three Rivers Park District
- Hennepin County
- The City of Hopkins, the City of Richfield, and other surrounding municipalities

All cities (including Edina) through which the Nine Mile Creek Regional Trail will travel have approved resolutions of support since 2003.

Implementation partners

Successful implementation of the Nine Mile Creek Regional Trail will require coordination and cooperation between multiple communities and stakeholders including the City of Edina, the City of Hopkins and the City of Richfield, as well as the Three Rivers Park District, citizen advisory groups from Edina and other communities, and advocacy groups including the Rail to Trails Conservancy and Transit for Livable Communities.

2.6 Bike parking and other end of trip facilities

End of trip, or ancillary facilities, are those provisions made for cyclists at the beginning and end of their trip. Bicycle parking, for example, is an end of trip facility that makes it more convenient and inviting for people to arrive by bicycle to a destination.

Provision of adequate end of trip facilities cannot be overlooked: if these are inadequate or if finding them is enough of an inconvenience (e.g. no bike parking is available), cyclists will next time choose a different mode for arriving or may choose another destination altogether, even if the provided bicycle routes are perfectly safe and convenient.

Inclusion of adequate ancillary facilities for bicyclists, though sometimes viewed as optional components of a transportation or land use plan, is as much a logical requirement for making cycling more convenient and inviting as is providing adequate parking for automobiles when designing shopping destinations, transit "Park and Ride" lots, or new residential or commercial development.

Near Eden Avenue, in Edina.

Types of end of trip facilities

A range of end of trip facilities are in use in cities in the US and elsewhere to increase convenience for cyclists. Besides bicycle parking racks (the most basic and essential type of end of trip facility), these include:

- Long-term, secure bike storage or lockers
- Showers and changing space for commuters
- Bike valet parking
- "Bike Stations," dedicated bike storage locations, usually located near transit hubs or other major destinations, where cyclists drop off their bikes to be stored and serviced as needed while the cyclist is at their destination

Did you know?

The importance of end of trip facilities in encouraging people to cycle more has long been confirmed by opinion polls starting in the 1970s.

In one of the largest polls of its kind, a 1991 nationwide Harris Poll found that 42 percent of respondents had ridden a bicycle in the previous year. Almost half of this group said that they would sometimes commute to work by bicycle, or commute more often, if there were showers, lockers, and secure bicycle storage at work.

Source: Rodale Press, Harris Poll for Bicycling Magazine.

Bike parking

Easily accessible, secure and convenient bicycle parking is essential to support people's choice to travel by bicycle. It is especially important that adequate facilities be in place before conducting promotion and encouragement campaigns that invite people to try their bikes for transportation - nothing will be better at preventing people from using their bikes again for travelling to school, shopping or entertainment than getting there the first time and finding it impossible to park.

Given that bicycle parking facilities are seldom provided in Edina (as noted in Chapter 1.5), and that there are few alternative bike parking locations like parking meters or street signs, providing ample, convenient and accessible bike parking is one of the first priorities recommended by this Plan.

A conveniently located bicycle parking area, adjacent to entertainment and shopping, in Iowa City, Iowa.

Types of bike parking

Bicycle parking is commonly grouped into two types:

- **Short-term bicycle parking** is meant to accommodate visitors, customers, messengers and others who arrive at a destination and are expected to depart within two hours. A standard "inverted U" rack (see Appendix A.5), appropriate location and placement, and weather protection is recommended.
- **Long-term bicycle parking** is meant to accommodate employees, students, residents, commuters, and others expected to leave their bikes unattended for more than two hours. This type of parking should be secure, weather-protected and in a visible and convenient location. Standard racks in a visible, supervised or a monitored location, as well as bicycle lockers, or a locked room with standard racks (and access limited to cyclists only) are recommended. A Bike Station (explained elsewhere in this chapter) provides long-term (and short-term) bicycle parking.

Benefits of providing bike parking

Providing functional, visible and secure bicycle parking offers these benefits:

- It inexpensively and efficiently increases a building's parking capacity
- It serves those who use bicycles as a mode of transportation
- It supports and encourages bicycle use

Good bicycle parking provision near 50th and France, and closeup of the recommended "inverted U" racks provided there. More details on recommended types of bicycle racks and parking provision guidelines can be found in Appendix A.4 (Bicycle parking facility design guidelines) and Appendix A.3 (Recommended provision of bicycle parking spaces).

Existing conditions

Very little bicycle parking is presently available in the City of Edina. Where it exists, it is usually of a substandard type and is inconveniently located, sometimes farther away than the automobile parking lot serving a location.

This section presents a brief summary of a bicycle parking survey conducted by members of the Bike Edina Task Force (BETF). A

more detailed listing of the survey results is given in Chapter 1.5.

Shopping and entertainment destinations

Level of bike parking provision in Edina's commercial and entertainment areas is generally low. The best facilities are located near 50th and France, where a total 24 bicycle parking spots of a recommended "inverted U" type are provided. No bicycle parking is provided at 50th and Vernon, or at 70th and Cahill. Southdale Mall provides 6 bicycle racks, accommodating a maximum of 64 bicycles. By comparison, Southdale provides 6,725 automobile parking spaces.

Public schools

In general, provision of bicycle parking in Edina Public Schools is poor. There is a total of 367 bike parking spaces for a total student population of approximately 7,500 students. There are several schools (including the City's High School) that do not provide any bicycle parking at all. Where bicycle parking is provided, racks are generally of a poor design that does not easily allow bicycles to be securely parked. In many cases, bike racks are located far from building entrances, and are in some cases across the street from the schools or beyond the automobile parking lot.

Parks and recreation centers

Parks, ballfields and playgrounds are all prime gathering spots for Edina families and children. However, as shown is Chapter 1.5 (Existing bicycle infrastructure), parks normally provide too few and in many cases no bike parking facilities at all.

Employment centers

No bicycle parking is provided in the City's major employment areas, including the areas around Industrial Boulevard, Ohms Lane, Metro Boulevard, 77th Street, Centennial Lakes, and the medical facilities near 66th and France.

Transit facilities

There is no bicycle parking provided at any of the transit stops located within the City of Edina, with the exception of the Transit Center at Southdale Mall, which provides a total of 14 bicycle parking spaces adjacent to the mall's smoking area. One hundred automobile parking spaces are provided as part of the "Park and Ride" operations at the transit hub.

Substandard "toast" type bike rack at Valley View Middle School. The majority of bike racks found at Edina public schools do not easily allow bikes to be secured.

Other end of trip facilities

Cyclists who are or may potentially be commuters have some additional needs not normally met by bike parking alone. For example, bike commuters who travel long distances, who travel during wet, hot or cold weather, or who may need to dress more formally than what is comfortable for riding usually need adequate shower, locker, and changing rooms at trip destinations.

For some cyclists the existence of these facilities can be as important as bicycle parking in determining their potential use of their bicycles for transportation.

Presently, no long-term bike parking, bike stations, shower or locker facilities, or additional end of trip facilities are found in Edina.

Recommendations

Improve bicycle parking at Edina public schools

- Work with the Edina public school system, the City of Edina, active living and safe routes organizations to improve and provide adequate bicycle parking at all Edina public schools

Improve bicycle parking at Edina parks

- Work with the Edina Parks and Recreation system, the City of Edina, active living and safe routes organizations to improve and provide adequate bicycle parking at all Edina parks and recreation centers

Improve provision of bicycle parking at commercial nodes and employment centers

- Adopt the "Recommended Bicycle Parking Provision" guidelines as presented in Appendix A.4
- Identify specific locations where bicycle parking should be installed (can be managed by the Bicycle Coordinator as recommended in Chapter 3.2)
- Work with existing businesses and business associations to obtain funding and make necessary improvements
- Include consideration and provision of appropriate bike parking accommodations as part of the approval reviews for new development in Edina
- Adopt a set of standard bicycle parking designs that ensure that racks provided are functional and meet accepted guidelines (see Appendix A.5)
- Consider subsidizing provision of bicycle parking at key locations. The City of Minneapolis, for example, will pay for half of the cost for adding bicycle parking to a location

Consider other end of trip facilities as appropriate

- Explore provision of other end of trip facilities serving bicycle commuters, including long-term bicycle parking and shower and locker facilities as part of the approval reviews for larger development in Edina

Develop a "Bike Station" at Southdale Mall

- Bike Stations are dedicated bike storage facilities, usually located near transit centers or major destinations, where cyclists drop off their bikes to be stored and serviced as needed while they commute. Please see Chapter 2.8 "Transit integration" for additional discussion of this recommendation

South View Middle School.

Did you know?

The City of Minneapolis operates a program to install public bicycle racks throughout the city. Businesses pay only half of the cost of the racks; the city picks up the remainder as a way to encourage improved provision of bicycle parking.

Bicycle parking serving a recently-built grocery store in Minneapolis.

2.7 Signs, signals and wayfinding

Signs, signals and wayfinding are essential components of any successful bicycle transportation system. They help make a network understandable and usable, and encourage existing and potential cyclists to use bicycle transportation facilities. Due to the nature of Edina's existing street system (which does not follow a necessarily intuitive pattern) effective signing, signaling and wayfinding will be critical components for success of this Plan.

Signs help cyclists understand how to get to their destinations and make a bicycle transportation system more inviting and useful.

Signs

Signs communicate transportation network information and give instructions for orderly, safe and predictable bicycle and automobile movements. Bicycle-related signs also alert other users to the presence of cyclists in a city's transportation network.

Bike route signs

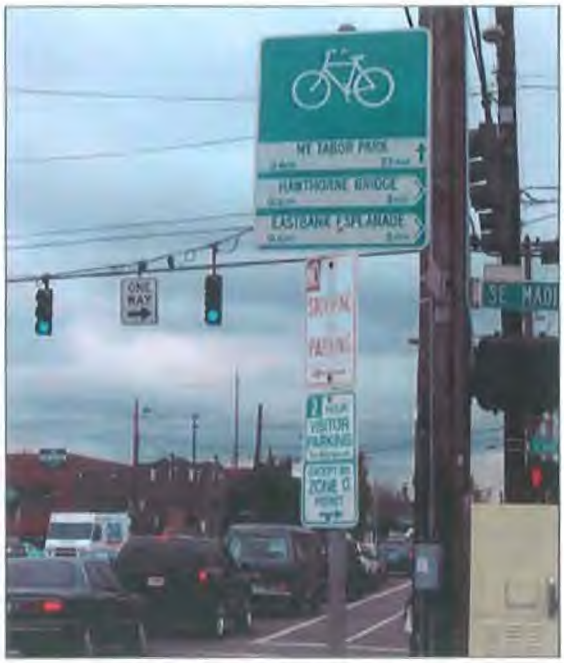
Bike route signs direct cyclists to their destination, guide them through neighborhoods efficiently and also alert motorists to the presence of cyclists on the road. Bicycle route signs in Edina should include "the 3 Ds" (distance, direction and destination) which are described below:

Distance

- The distance component of an effective bicycle route sign lets cyclists know how long their trip will be, adding a measure of certainty and convenience to the planning of their trips. Distance should be communicated in miles as well as in time. The time should be calculated using a comfortable or "no sweat" pace of cycling (10 mph is recommended).

Direction

- The direction component of an effective bicycle route sign guides cyclists throughout their trips to their destinations. Directional signing also helps cyclists avoid obstacles such as freeways, cul-de-sacs and dead end roads. The direction is indicated simply by using an arrow on the sign that directs the cyclist to proceed forward or to prepare to make a turn. Including direction on bicycle route signs also gives motorists warning to expect cyclists on the road and to anticipate cyclists' turning movements.



Recommended signing practice, showing distance, direction and destination, in use in Portland, Oregon.

Destination

- The destination component of an effective bicycle route sign helps cyclists choose the most effective route to their desired destination and helps decrease confusion and wrong turns especially in areas where the street system does not follow a strict grid pattern.

Blue bike lanes

Provision of bicycle lanes brings benefits to all transportation system users. They define cycling and automobile space, they increase cyclist visibility, and announce to motorists that they should expect bicycles on the road.

However, if a motorist is entering a road with a bike lane from a location with limited visibility (e.g., from a highway off-ramp) they may not know to expect a cyclist; similarly, a cyclist may not feel confident continuing on the lane knowing that a motorist might not be aware that a bike lane is in their path. Additionally, automobile drivers may not know to yield to cyclists when crossing a bicycle lane.

To remedy this situation, many European cities and some US cities are using colored markings at bicycle-automobile crossings as a way of reducing potential conflicts and increasing user comfort. Best results in US practice have been reported using blue as a bike lane color in these conflict areas. Signs alerting motorists to yield to bikes on the blue lanes should be provided to ensure consistent and safe behavior.

Motorists making a right turn movement must yield to cyclists on the blue bike lane (the right side parking lane ends just before the blue lane to become a right turn lane). Photo: Portland, Oregon.

Sample sign announcing to motorists exiting a freeway that they must yield to cyclists on the blue bike lane.

Wayfinding

Wayfinding tools simplify bicycle trips and can encourage more people to choose cycling for their daily mobility needs. While route signs do serve an important wayfinding function, inexpensive wayfinding tools provide more continuous reassurance to cyclists as they travel toward their destination.

Route dots

Bicycle "route dots" are small symbols painted on the pavement along bicycle routes passing through residential or low traffic areas, especially where routes do not follow an obvious path (for example, where a route goes through several turns in a residential neighborhood). Bicycle route dots should be employed when a route requires a cyclist to choose between multiple directions

and in the absence of other treatments that would also serve a wayfinding function such as bicycle lanes or lane arrows.

Route dots (typically one ft across) help cyclists navigate through neighborhoods and other locations where routes are not immediately obvious.

Signals

Traffic signals that fail to detect the presence of cyclists frustrate cyclists and motorists alike, and can encourage hazardous behavior. Adjusting existing signals in Edina and employing newer devices at some locations is recommended by this Plan.

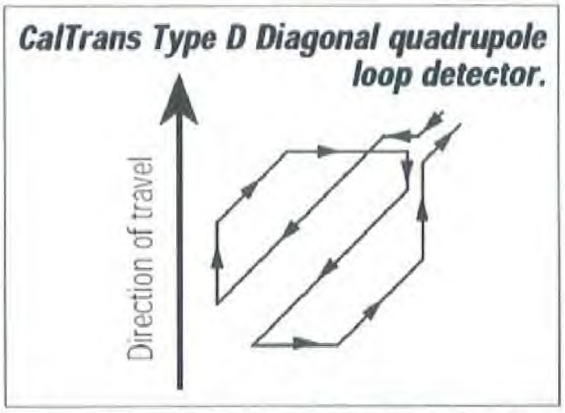
Traditional signal loop detectors

At many signalized intersections existing loop detectors are not tuned to detect the presence of bicycles. In some cases simply adjusting the existing device and providing markings to direct cyclists to the location where they will most easily be detected can solve the problem.

Bike-sensitive loop detectors

In cases where existing loop detectors cannot be tuned to function well for cyclists or where installations are undergoing repair or improvement, consider installing loops to detect the presence of bikes on the roadway. Detectors should be installed to cover areas of the road where cyclists are likely to ride, including the right edge of travel lanes and the center of bicycle lanes.

The best standard design for detecting the presence of bikes is a modified quadrupole loop (also known as the "Caltrans Type D"). This loop design is sensitive over its entire width with a quick drop off in sensitivity outside its perimeter, which helps avoid detection of vehicles in adjoining lanes.



A recommended bike loop detector design: the CalTrans Type D modified quadrupole loop detector.

Loop detector pavement markings

Pavement markings can be used to direct cyclists to the proper spot where the signal device may detect their presence. These markings also alert motorists that bicycles will be present in various locations at signalized intersections.

Bicycle signals

Bicycle signals improve safety for cyclists and motorists by eliminating turning movement conflicts on wide roadways and major intersections. They are recommended for use at busy intersections and multi-lane roadways and help improve crossing comfort and safety by giving cyclists a head start.

Bicyclists waiting to cross a busy arterial at a bike signal in Portland, Oregon.

Recommendations

Bike route signs

- Provide bike route signs along all designated Primary Routes of Edina's bicycle transportation network.
- Provide distance, direction and destination on all bike route signs in Edina, indicating distance to other routes and to major landmarks and destinations.

Blue bike lanes

- Provide blue bike lanes and associated signs at all locations where automobile movements into and from freeways cross over designated Primary bicycle routes, and where multi-lane streets provide for right-turn automobile movements crossing over bicycle lanes. Locations recommended for blue bike lane treatments include 70th Street near Highway 100; 66th Street near Valley View Road and France Avenue; 69th Street and 70th Street near France Avenue; Valley View Road near Highway 62; the intersection of 50th Street and Wooddale Avenue; Benton Avenue near Highway 100; and Vernon Avenue near Gleason Road, Olinger Boulevard and Tracy Avenue, among others.

Wayfinding

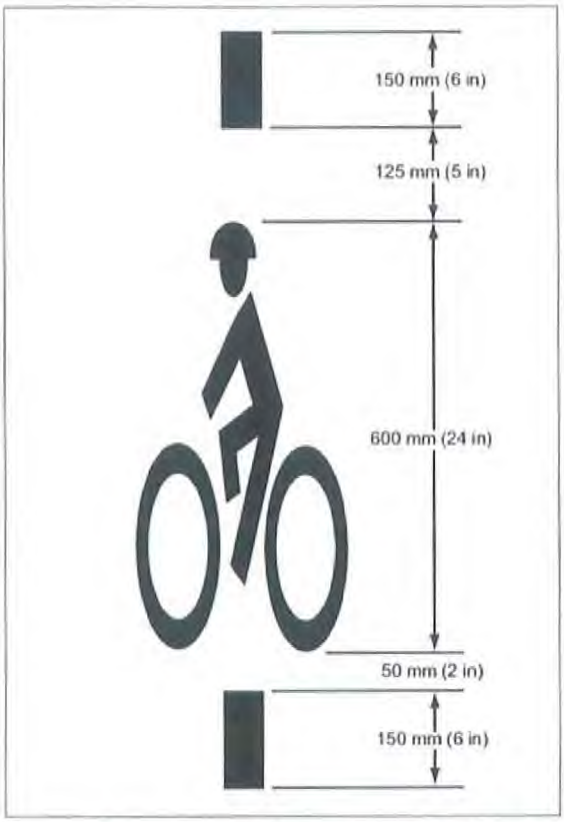
- Provide route dots along designated Primary and Secondary Routes of Edina's bicycle transportation network, especially for routes through residential areas and where routes change direction.

Loop detectors

- Provide bike-sensitive loop detectors wherever designated Primary and Secondary bicycle routes cross major streets in Edina, including at France Avenue, 66th Street, Vernon Avenue, and 50th Street, among others.
- Include pavement markings at all loop detector locations to help cyclists position their bikes to activate signals.

Bicycle signals

- Installation of bicycle signals is recommended for designated Primary bicycle routes serving Southdale, including 66th Street, Valley View and 69th Street, and 70th Street.



Pavement marking recommended by the Minnesota Manual on Uniform Traffic Control Devices (MUTCD) to encourage proper positioning of bikes at loop detectors.

For additional guidance

The recommendations listed in this chapter are meant to provide general recommendations for improvement of Edina's bicycle network. For additional guidance and information including sign placement, approved colors and other topics please consult Chapter 7 (Traffic Controls) of the Minnesota Department of Transportation Bikeway Facility Design Manual and Part 9 (Traffic Controls for Bicycle Facilities) of the Minnesota Manual on Uniform Traffic Control Devices.

2.8 Transit integration

Improving the bicycle-transit connection can play an important role in making bicycling a part of daily life in Edina. Easy and convenient linkages between bicycles and transit help increase the number of potential bicycle users by increasing the number of destinations available to riders and by alleviating potential concerns about lengthy trips, riding at night, or in poor weather. Effective bike-transit linkages allow cyclists to reach more distant destinations and help increase transit ridership and use.

Providing easy connections between bikes and transit will help improve transportation options for Edina citizens.

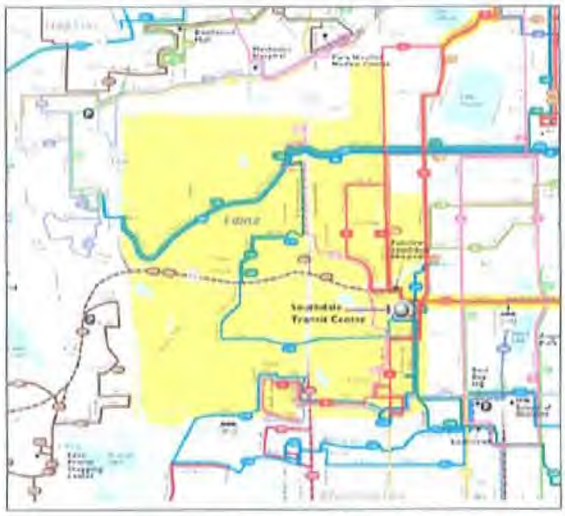
Good bike-transit connections also help make transit work better. If people on bicycles can easily reach transit stations, some of the need for operating costly and infrequent transit feeder service is decreased. This is specially important in a city like Edina where relatively low population densities work against efficient provision of transit service within walking distance (one quarter mile) of commuters.

Connecting bicycles with transit

There are four main components of bicycle-transit integration:

- Allowing bicycles on transit
- Offering bicycle parking at transit locations
- Improving bikeways to transit
- Encouraging usage of bicycle and transit programs

A brief overview of each and some additional practices and programs that may help improve bike-transit connections in Edina are included in this section:



Existing transit service in Edina. The Southdale Transit Center is a principal component of Edina's transit infrastructure.

Bikes on transit

Allowing bikes on transit helps extend the distance that a cyclist may comfortably reach. MetroTransit has greatly strengthened the interconnection between cycling and transit in the Twin Cities region by providing space for bikes on all of its buses and trains.

Bike parking at transit

Providing safe long-term bicycle parking at transit stations helps reassure bike commuters that their bikes will still be there when they return from work and will encourage bike commuting to transit. Typically a mix of short and long-term bike parking (see Chapter 2.6 for definitions) is provided at transit centers.

Bicycling to transit

Local and national surveys consistently show that the biggest barrier to more frequent cycling is the lack of safe and comfortable routes to destinations, specifically bikeways. Given that transit centers and stations have not traditionally been viewed as major destinations for cyclists, few safe and convenient bikeways from neighborhoods to transit centers have been developed. Such bikeways, along with the availability of secure long-term bicycle parking and the accommodation of bicycles on transit, are part of the answer for attracting additional commuters to transit, especially in communities where low population densities make frequent transit feeder service impractical.

The transit center at Southdale Mall.

Encouraging biking and transit

Letting people know about existing bike and transit facilities (and showing them how to use them) is one of the best ways of encouraging and increasing their use. Sharing information on the practical benefits of combining bicycling and transit (greater radius of reachable distance, convenient connection to destinations, health benefits from physical activity, and potential time and cost savings over driving an automobile) will help invite potential cyclists to combine their trip with transit.

Programs like MetroTransit's "Guaranteed Ride Home" for cyclists who ride their bike to work three times a week or more also help reduce reluctance to travelling without an automobile. Offering discounts or other incentives to people who arrive at a destination by bus or bike can also help increase the number of bicycle and transit riders.

An incentive program to encourage transit use: local businesses offer discounts to customers who arrive by transit. Sponsored by MetroTransit and the Lake Street Council in Minneapolis.

Bicycle "Park and Rides"

Many transit agencies in the US have built expansive (and expensive) automobile "Park and Rides" as an alternative to providing costly feeder bus service. Recently, growing concerns about congestion, air quality and facility costs have prompted a reexamination of the "Park and Ride" concept - especially when considering that many of the auto trips to these facilities are less than two miles - an easy cycling distance. Cycling to transit ("Ride to Ride") instead of driving benefits communities by reducing demand for land and lowering taxpayer costs, energy consumption, traffic congestion and air pollution.

Bike Stations at transit centers

"Bike Stations" are common in many cities in the US and Europe. They are staffed, dedicated bike storage locations, usually located near transit hubs or other major destinations. Cyclists who ride to transit can drop off their bikes to be stored and serviced as needed while they continue their journey on transit. These facilities provide long-term bicycle parking and sometimes also include shower and locker facilities.

The bike station at Millenium Park in Chicago, Illinois has space for 300 bikes, provides shower and locker facilities, and also includes a repair shop and snack bar.

Present conditions

Existing transit service

The city of Edina is served by MetroTransit and SouthWest Transit. Regularly-scheduled transit service includes the following routes:

Route	Service description
6	High frequency route serving University of Minnesota, Downtown Minneapolis, Uptown to Southdale Mall, Centennial Lakes and Edina Industrial Park
46	Local route between Eden & Vernon and the Highland Park neighborhood in St. Paul
114	Express route from Southdale to the University of Minnesota via Excelsior Boulevard and Hennepin Avenue
146	Limited stop route between 50th/Vernon and downtown Minneapolis via 35W during rush hours
152	Express route from Southdale and 50th and France to the University of Minnesota
515	High frequency route (15 minutes or less) connecting Southdale Mall to Richfield and Minneapolis along 66th Street, then to Fort Snelling and the Veterans Administration Medical Center to Bloomington and the Mall of America
538	BE Line (Bloomington Edina Transit): Southdale Mall to Best Buy Headquarters in Richfield to Normaldale College, HealthPartners and the Mall of America in Bloomington
539	BE Line (Bloomington Edina Transit): Southdale Mall to York and France along Old Shakopee Road to the Mall of America
540	Local route operated by Transit Team, Inc. along I-494 between the Edina Industrial Area and the Mall of America
578	Express route connecting York Avenue, Benton Avenue, 70th Street, Cahill Road and Southdale Mall with Downtown Minneapolis
587	Express route between 76th and France and Downtown Minneapolis via Highways 100 and 394
631	Southwest Transit route connecting Fairview Southdale Hospital and Southdale Mall to Eden Prairie, the SouthWest Transit Station and Chanhassen

Interior view of secure parking in a bike station in Seattle, Washington.

Additionally, Edina Dial-A-Ride provides door to door shared transit service, on a first come first served basis, within city boundaries.

Bike parking at transit stops

No bicycle parking racks or other facilities are presently provided at transit stops within Edina, except for the Southdale Transit Center.

Southdale Transit Center

The region's fourth-busiest transit hub operates at Southdale Mall. Most transit routes providing service in and out of Edina include a stop at this Transit Center. This Center also functions as a MetroTransit "Park and Ride" lot, where motorists are able to drop off their automobiles and finish their journey on transit. About one hundred automobile parking spots are provided.

The Southdale Transit Center provides two bicycle parking racks, located adjacent to the mall's smoking area and accommodating a total of 14 bicycles. The racks are of a "wave" type that is not recommended, as the design requires cyclists to lift their bikes to position them correctly. Secure long-term parking (including bicycle lockers) is not provided.

Bicycle parking provided at the Southdale Transit Center.

Recommendations

Connecting to the Southdale Transit Center

Southdale Mall is an important destination for Edina cyclists. Safe and comfortable routes to the Mall are recommended elsewhere in this Plan. It also will be important to include designated bicycling space for cyclists within the Mall's existing circulation network. Work with Southdale Mall management and with MetroTransit to set up this internal cycling network.

A potential route for internal bicycle circulation at Southdale Mall.

Improving parking facilities

Improving the provision of bike parking facilities at transit stations will make it more convenient for transit users to bike to transit and will, in subtle but effective ways, encourage transit users who don't ride to begin to do so.

For transit stops

- All transit stops within Edina should include at least one "inverted U" or "post and loop" bike rack.

At the Southdale Transit Center

- Bike parking at the Southdale Transit Center should include a mix of short-term and long-term parking (See Chapter 2.6 for more information). This Plan recommends that 80% of the total bicycle parking provided at the Southdale Transit Center be configured as long-term parking (See Appendix A.4 and A.5 for additional guidance).

Encouraging cycling to the transit center

Work with MetroTransit and with Southdale Mall management to set up an incentive program to encourage people to begin arriving by bike to the Southdale Transit Center.

Southdale Bike Station

Work with Southdale Mall management, with Metro Transit, with bike and transit advocacy organizations, and with local independent bike shops to reconfigure the existing Southdale Transit Center and Park and Ride facilities as a bike station offering secure short and long-term bike parking, shower and locker facilities, and bicycle repair services.

Vernon and Eden Avenue Park and Ride

Work with MetroTransit and the City of Edina to explore including bicycle "Ride to Ride" or bike station facilities as part of the potential development of a proposed Park and Ride facility between Vernon Avenue and Eden Avenue (currently at an early stage of concept development). This facility is also expected to help relieve automobile parking demand at 50th and France; including potential bike rental or checkout services and safe and comfortable routes to this and other nodes in Edina (recommended elsewhere in this Plan) would help transit riders connect to other points in the city.

2.9 Education and encouragement

Even the best-planned bicycle network will fail to live up to its full promise if potential riders are unaware of its existence, or if it's difficult to figure out how to get from one destination to another. Routes to school will not be used if children cannot transport their backpacks on their bikes or if parents feel their children lack the skills to safely navigate their routes. Cyclists and automobile drivers will each do better if they learn how to consistently and courteously share road space with each other and to coexist within Edina's transportation and mobility infrastructure.

Riding to school is a valuable way for children to explore using their bicycles for transportation.

This chapter is about how the City of Edina can go about inviting people to more safely and effectively use the route network that develops from this Plan by making it easier, more convenient and more fun to do so. It is titled "education and encouragement" to acknowledge that both of these activities build on each other, and that learning about safe riding and disseminating information about the City's bikeway networks will lead more people to use their bicycles as a means for making at least some of the several trips that they make within the course of the day.

Learning to ride safely

Cycling is a safe activity that can become even safer with improved education. Motorists, cyclists, and pedestrians each have much to contribute to making cycling (and other modes of travel) safer and more effective: one of the leading causes of crashes is the unexpected behavior of at least one of the parties involved. Cyclist, motorist, and pedestrian safety programs can help reduce the risk of crashes and injuries while giving new cyclists the confidence needed to ride more regularly. In fact, safety training has been shown to be one of the most effective and cost-efficient ways of reducing collisions and encouraging cycling.

Three main components of safety training are addressed under this section. They center on:

- Developing safe cycling skills in children,
- Teaching adult cyclists their rights and responsibilities, and
- Increasing motorists' awareness of bicyclists' rights on the road, and teaching them how to safely share the road with bicycles

For children and young people

It is important to share information on safe bicycling with young people from early on. Not only will this help them become safer cyclists, but it will also reinforce the message that cycling is a useful and acceptable means of transport. While it is not uncommon for schools in the US to provide automobile driver education for children 16 or older, it is rare to find similar provision of cycling education, even though most children seven and older are able to ride a bicycle and (because of generally poor provision of separated trails) routinely ride in streets that are also used by automobiles.

At the 2007 Edina Bicycle Rodeo, organized by Catherine Elliot and supported by the Bike Edina Task Force (BETF). Children and young riders had the opportunity to learn the rules of the road for safe cycling and to practice their new skills in a safe, supervised setting.

In European countries where cycling serves a much larger portion of all trips it is a given that schools provide formal training in safe cycling for children starting in elementary school. In the Netherlands, for example, children undergo a three week training on cycling rules and maneuvers each year. It is easy to imagine that Edina schools could easily offer something similar, perhaps as a component within physical education classes (and one which could help promote a lifetime of safe and enjoyable physical activity). It is also a given that schools, parks and other places where young people congregate need to provide a physical infrastructure that supports children's cycling by making sure that adequate bike parking, and well-marked trails or lanes, are available (covered elsewhere in this Plan).

Some approaches

School children are most effectively reached when an action-oriented teaching approach and a repetitive practice process are coupled with awards and incentives. Awards and incentives can consist of certificates of completion or bicycle/pedestrian licenses, free or reduced-cost bicycle helmets and other accessories, or discount coupons for area bicycle shops.

To reach the most children, it is important to work closely with schools to ensure that school-age children are receiving an age-appropriate bicycle safety message and are learning skills that will help them function safely on the public right-of-way.

Messages

The following messages should be consistently taught:

- Wear a helmet. In the event of a bicycle crash, wearing a helmet reduces the risk of serious head injury by up to 85%.
- Obey all traffic laws. Bicyclists have the same rights, and

consequently the same responsibilities as motorists.

- Look both ways before crossing streets.
- Always ride with the flow of traffic.
- Be predictable and always signal your intentions.
- Be visible; wear light-colored clothing and bright or reflective clothing and always use a front light and rear reflectors at night.
- In addition, very young children (seven or less) should ride with supervision.

For adult cyclists

Adult cyclists range in skills and confidence. Some adults are comfortable riding on busy streets and mixing with traffic while others prefer quieter streets or off-street paths. There are adults who ride a bicycle only a few times a year and those who ride often but primarily for recreation. Each type of cyclist has his or her own concerns and philosophy about how bicycles fit into the transportation system - education efforts must recognize this and tailor messages to each group.

It is also important to reach as wide a range of bicyclists as possible. Since adults do not often group together as a captive audience as school children do, it is important to offer a wide range of opportunities to improve their knowledge and skills related to bicycling.

Messages

The following messages should be consistently taught:

- Be alert. Watch for other users and sudden behavior changes. Pay careful attention to potential road hazards, such as potholes and gravel. Adjust speed to maintain control of the bicycle.
- Obey all traffic laws; bicyclists have the same rights, and consequently the same responsibilities as motorists. Disobeying traffic laws makes it more difficult for motorists to know what to expect from cyclists and is potentially dangerous.
- Always ride with the flow of traffic. Ride where motorists and others expect cyclists, and never against traffic.
- Avoid riding on sidewalks. It is illegal in commercial districts in Minnesota, and puts pedestrians at risk. It also makes it more difficult for motorists to see cyclists - research demonstrates that it is in fact 5 times more dangerous than riding on the street, even in places where no bicycle facilities

Along 70th Street.

Did you know?

Bike riding on sidewalks is 5 times more dangerous than riding on the street, even if the street includes no provision for bicycles.

Source: William Moritz, University of Washington: "Survey of North American Bicycle Commuters: Design and Aggregate Results," Transportation Research Board, Vol 1578, 1997.

Rules of the Road

Please see Appendix A.10 for Minnesota Statutes covering "Rules of the Road" for cyclists and motorists.

Prepared by the Bike Edina Task Force (BETF), this Appendix also includes some additional safety and education resources.

are provided.

- Be predictable. Signal your turns and do not weave in and out of traffic.
- Be visible. Wear light-colored, bright or reflective clothing and use front lights and rear reflectors or lights at night.
- Wear a helmet.

For motorists

The goal in educating motorists is to foster a broad and general public awareness and respect for bicycling. Many motorists are already occasional or regular cyclists, and may begin riding more often if they see and feel the emphasis on providing safe conditions for all road users. Bicycle route signs and markings are also helpful for motorists because they remind them of the presence of cyclists and of the need to share space with other users of the road. Information on the rights of cyclists should be included as part of training for all automobile drivers.

Members of the Three Rivers Park District Police helped distribute rider safety information to young people participating in the 2007 Edina Bike Rodeo.

Messages

- Be alert. Watch for cyclists and other users and for sudden behavior changes. Pay attention especially at intersections.
- Obey all traffic laws. What would amount to a minor fender bender between two motor vehicles could be a serious injury for a cyclist in a bicycle-motor vehicle crash. Driving the speed limit and coming to a full stop at red lights creates a safer environment for all.
- Be predictable. Signal turns well before an intersection.
- Share the road. Cyclists have the right to travel on all roads and streets except limited access freeways.
- Give room. Follow and pass at a safe distance. Never get closer than three feet to a cyclist under any circumstance. It is dangerous and illegal under Minnesota law.
- Cyclists have the right to take full possession of a travel lane in several situations, including when avoiding fixed or moving objects on the road (like vehicles, pedestrians or road surface hazards) and when provided road space is too narrow to allow a motor vehicle to safely pass with three feet of clearance of the cyclist.
- Be patient and courteous with cyclists and other users. Passing bicyclists just before a stop light or sign creates an atmosphere of unnecessary hostility.
- Do not honk unless absolutely necessary. Cyclists can hear and see motor vehicles; honking simply jars their nerves.

Education and encouragement: for the Edina Police Department

The Edina Police Department can play an important role in improving safety for cyclists, for encouraging people to ride, and for helping educate members of the public about the rights and responsibilities of cyclists on the road.

Members of the police are visible and respected members of the Edina community. Encouraging bicycle patrols will allow a visible and immediately available presence on commercial nodes or other important Edina destinations while demonstrating that cycling is a useful and valid transportation choice.

Additionally, members of the police can help encourage young people's cycling activities by attending and participating in rider safety trainings and other programs recommended in elsewhere in this chapter.

Encouraging people to ride

How do we invite a recreational cyclist to try commuting to work on her bike rather than her car? Is there an incentive program that can help persuade a shopper to ride their bike to the grocery store? What are some of the tools we can use to get more people to choose to bike (or at least try biking) instead of driving to go shopping or to school, or for any other of their daily trips?

This section includes some tools that may be helpful in preparing the ground for the kind of changes in travel behavior the Plan seeks to make possible.

Student programs

Encouraging student cycling will help instill life-long habits of health and activity, and provide proof to students that cycling is a serious and valid transportation option. Some strategies and programs that could be implemented in Edina to encourage student cycling include:

- Working with the Edina public school system to encourage students and staff to ride to school
- Working to integrate cycling education into physical education classes
- Establishing awards and incentives programs for completion of bicycle classes, or for riding to school so many times per week, etc.
- Discounts to area bicycle shops as prizes for outstanding students

Did you know?

In 1969, about half of all students walked or bicycled to school. Today, fewer than 15 percent of all school trips are made by walking or bicycling, while one quarter are made on a school bus, and over half of all children arrive to school in private automobiles.

Source: Federal Highway Administration: Transportation Characteristics of School Children, 1972; and National Household Travel Survey, 2001.

Rider incentive and TDM programs

Increased use of bicycle transportation can help achieve Transportation Demand Management (TDM) objectives while providing additional benefits, including improving community health and supporting local economic development. Several types of incentive programs are already in use in communities in the US:

- Business associations can provide discounts to shoppers who arrive by bike
- Employers can offer parking cash out benefits, which give commuters who don't drive the cash equivalent of the parking subsidies provided to drivers

These programs are typically recommended to help address issues of lack of parking and increasing congestion that often begin

to hinder successful commercial areas. In the case of Edina, potential connections should be explored with the proposal to develop a municipal "Park and Ride" facility near Vernon and Eden Avenue that also means to address parking and congestion issues at 50th and France.

Special Community Events

Special events offer an opportunity to bring attention to practical, fun, and healthy aspects of cycling as a tool for mobility and transportation. Because they are community-wide and of limited duration, people are more open to participating without feeling like they have to commit to making a long-term change in their travel habits - they are just trying commuting to work once, not everyday. But sometimes that's all that's needed to open the door to adopting new travel behaviors over the long term.

Some events and programs that can encourage participation include:

- Monthly group rides with the Mayor or other important city personalities can help promote cycling in Edina. Similar events in other cities even close a road or two to auto traffic once a month and make it a bike and pedestrian-only event.
- Parks and recreation programs, working with non-profit or cycling advocacy groups, can sponsor cycling events and activities, particularly on trails and regional cycling routes.
- Special bicycle commuter events can help raise the profile and potential for bicycle commuting. Bike to Work Week events, which typically include special publicity, route guidance to first-time bicycle commuters, and group breakfasts, offer an opportunity to try cycling in a safe, relaxed and fun environment. Bike to Work Week events have been held in many Twin Cities communities over the last several years.

Visitor Programs

Tourist promotion materials can highlight bicycling as a way to circulate within and experience Edina. For example, guests staying at the Sheraton Hotel could use the network proposed in this Plan to ride to Southdale for shopping and entertainment. Several communities in the US and Europe boast of their cycling orientation as part of their identity and as a draw for potential visitors.

Pedal-powered participants returning from Edina's 4th of July Parade.

The Minneapolis Bike Tour, held for the first time in September 2007, brought more than 4,500 cyclists to that city's Grand Round Scenic Byway System, which was closed to all automobile traffic. The Tour included shorter rides for novice cyclists.

Bike network maps

One of the greatest barriers to effective use of a bike network is not knowing how to get on it and use it to get to destinations. Printing and distributing bikeway maps is a high-benefit, low cost project that can help cyclists locate bikeways, identify better route choices for their trip, and help them avoid uncomfortable cycling conditions. In addition, maps can provide information covering such topics as Rules of the Road, bicycle safety and maintenance, and connecting with mass transit. Another very potentially helpful tool is the implementation of a "Mapquest for bikes" that allows a cyclist to type in their origin and their destination and prints out one (or several) recommended routes along preferred streets (something very similar to MetroTransit's trip planner).

Useful cycles

An important impediment to more widespread use of bicycles for transportation is that the majority of bicycles sold today are not very convenient for taking care of errands and the small shopping trips that make up a significant portion of the auto trips in our region.

If you ride over a puddle, your wheel throws water up the back of your shirt; if you wear pants, they get caught in the bicycle's chain; if you have anything besides your wallet to carry there is no place for it, and you must balance it as best as possible on your handlebars as you pedal and steer, bumping it with your knee with every push. And if you're a student, there is certainly no place for your eighty pound backpack on your bike.

Fortunately, the remedy is fairly simple (and relatively inexpensive): fenders, baskets, trays, chainguards and lights can be easily purchased and installed by visiting any of Edina's local independent bike shops, which all carry accessories that can help a cycle be a more useful tool for its rider. Working alongside these businesses, health advocacy and transportation organizations may be able to provide discounts or other special offers or events to help encourage students and potential commuters to improve their bikes so they may serve a wider variety of trips.

Turning a nice bike into a useful bike:

Step 1: A comfortable bike, but not very useful for shopping or going to school.

Step 2: Ten minutes and $20 later, puddles matter a little less.

Step 3: Add $15, and a front basket makes a run to the store possible.

2.10 Operations and maintenance

A cyclist rides on two very narrow, high-pressure tires. What may appear to be an adequate roadway surface for automobiles (with their four wide, low-pressure tires) can be treacherous for cyclists: small rocks can deflect a bicycle wheel, a minor ridge in the pavement can cause a spill, a pot hole can cause a wheel rim to bend. Wet leaves are slippery and can cause a cyclist to fall; gravel that gets blown off the travel lane accumulates against the curb, in the area where bicyclists ride.

Although bikeways will always be subject to debris accumulation and surface deterioration, a proactive and cyclist-conscious approach to roadway maintenance and operations will go a long way towards ensuring safe and efficient utilization of Edina bicycle network assets.

This chapter contains several recommendations that will help maintain and improve Edina's bicycle infrastructure.

Uneven pavements, rough joints and poorly located facilities work against the intended provision of safe and inviting bicycle facilities.
Photo: Plymouth Avenue in Minneapolis.

General considerations

Maintenance budget

Preventive maintenance reduces hazards and future repair costs. Maintenance costs and responsibility for maintenance should be assigned when projects are planned and budgets developed; typical annual maintenance costs range from 3 to 5 percent of infrastructure replacement costs - for example, a $100,000 facility should include a $5000 annual maintenance budget. Life-cycle cost analysis is recommended to determine the net value of using longer-lasting higher quality materials during construction if they reduce yearly maintenance expenditures.

Management plans

A management plan is a tool to identify maintenance needs and responsible parties. A management plan that includes the maintenance component for a proposed facility should be in place before construction. Additionally, a management plan should include a means for users of the system to report maintenance and related issues and to promptly address them.

A facility's management plans answers basic operational and staffing questions such as: How frequently are preventive

maintenance tasks performed? Who fills potholes? Who removes downed or dangerous trees? Responds to vandalism and trespassing? Removes litter? Replaces stolen or damaged signs? Waters and weeds landscaping? Acts as the main contact? Does the work? Pays the bills?

User-Initiated Maintenance Requests

The users of Edina's bicycle network will likely be the first parties to notice hazards, maintenance issues, or opportunities to bring improvement to the system. Establishing a formal mechanism for receiving requests for maintenance can help avert deterioration of the city's infrastructure investments while reinforcing citizen-ownership of and providing effective management for Edina's bicycle assets.

Hazardous shoulder on Interlachen Boulevard.

Bicycle Facility Maintenance Request Program

A Bicycle Facility Maintenance Request Program could help extend the reach of the city in protecting its infrastructure and providing cyclists with an inviting and safe bicycling environment. This program would respond to requests for small-scale, low-cost improvements, such as sweeping, repairing surface problems, and replacing unsafe gratings.

Edina cyclists could make a request using existing and recommended bicycle and civic networks:

- The Edina Bicycle Advisory Committee (recommended in Chapter 3.2) could be an official channel to forward information to the City and monitor network quality
- Maintenance request cards, which could be made available at Edina bike shops, libraries, schools, and City Hall
- By directly contacting the City's Bicycle Coordinator (a position recommended in Chapter 3.2). The Bicycle Coordinator would catalogue all requests and route them to the appropriate Edina Public Works personnel. Requests for work outside Edina's jurisdiction (for example for Three Rivers Trails) would be sent to the appropriate jurisdiction, and requests that are outside the scope of the program are considered for the City's Capital Improvement Program or other funding sources. The person making the request is contacted either by letter or telephone once action is taken.

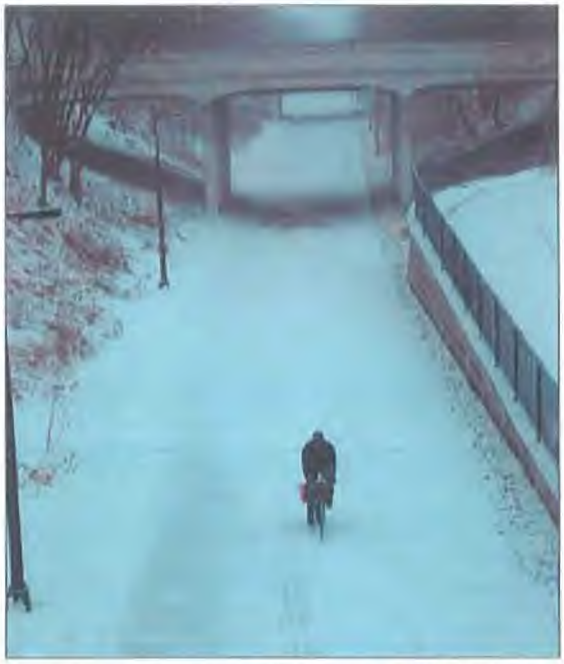
Routine maintenance

Snow and ice removal

This Plan proposes the creation of a bicycle transportation network that will allow and invite people to substitute many of their automobile trips by cycling instead. Given Minnesota's weather, and the fact that many bicyclists already bike year-round (and that many more would also if adequate maintenance were given to bicycle facilities), snow and ice removal must be planned with the expectation that bicycle facilities will continue to be used during winter months.

Care should be taken to place snow and ice well out of the portion of the travel lane that bicyclists use. Bike trails and paths should also be swept with regularity.

Bikeways, gutters and curb ramps should not be used as snow storage areas for snow removed from streets; policies should treat the clearance of snow from bicycle ways and road shoulders as being of equal importance as clearance of snow from the automobile travel lanes in streets.



Adequate winter maintenance will help keep bicycle transportation routes open. The Midtown Greenway is maintained by the City of Minneapolis and is open to cyclists and pedestrians 24 hours a day year-round.

Sweeping

Loose sand and debris on the surface of bicycle lanes, paved shoulders, and paved sections of shared use paths should be removed at least once a year, normally in the spring. Sand and debris will tend to accumulate on bicycle lanes because automobile traffic will sweep these materials from the automobile portions of the roadway. This is especially true for bicycle lanes that are located directly adjacent to a curb, where debris collects already.

With experience, the City's Bicycle Coordinator will be able to provide a list of high priority streets to the City's Public Works Department which will aid in planning resource allocations for routine street cleaning as well as for removing sanding materials used during winter snows.

Surface repairs

Bicyclists and pedestrians are more sensitive to problems in the roadway surface than motor vehicles. Small bumps and cracks that are barely noticeable to motor vehicles can cause a bicycle to crash or swerve into traffic.

A smooth surface, free of potholes and other major surface irregularities, should be provided and maintained. Care should be taken to eliminate other physical problems. Requests for surface improvements should be made through the Bicycle Facility Maintenance Request Program or through the City's inspection and maintenance schedule.

Two and three quarter inch drop to drainage grate on 50th Street near France Avenue - one of the top destinations for Edina cyclists.

Resurfacing / pavement overlays

Street resurfacing projects provide ideal opportunities to greatly improve conditions for cyclists. However, if not done correctly (by, for example, leaving a ridge or a joint in a shoulder or bicycle lane), some conditions may worsen.

Items to consider on resurfacing projects that will help improve conditions for bicyclists include:

- Utility covers and drainage grates should be raised to within 1/4 inch of the resurfaced pavement surface, and grates should be bicycle-safe grates
- Gravel driveways and alleys should be paved back 5 to 10 feet from the edge of pavement or right-of-way to prevent gravel from spilling onto the shoulders or bike lanes
- Using chip seals to surface or resurface shoulders should be avoided, as they will render the shoulder area unusable to most bicyclists
- The level of adjacent unpaved compacted shoulders should be raised so they are flush with the new roadway surface, as a vertical drop onto a low shoulder can cause a cyclist to fall into the automobile travel lane
- Avoid leaving a ridge in the area where cyclists ride, which occurs where an overlay extends only part-way into a shoulder or bike lane. If possible, the overlay should be extended over the entire surface of the roadway to avoid leaving an abrupt edge. If this is not possible, and there is adequate shoulder or bike lane width, it may be appropriate to stop at the shoulder or bike lane stripe, provided no abrupt ridge remains
- Constructing a new pavement over a narrower existing roadbed may sometimes create hazardous conditions. The old roadbed is in most cases narrower than the new paved roadway and because of differential settling longitudinal surface cracking will occur on the paved surface. These longitudinal cracks typically appear from 1 to 2 feet from the edge of the road, in the area where bicyclists normally ride, forcing cyclists to use a shoulder (if one is available), or to ride in the travel lane

A three inch drop along a narrow shoulder on Interlachen Boulevard.

Many overlay projects offer a chance to widen the roadway for greater bicycle space, or to restripe the roadway with bike lanes. The Bicycle Coordinator, working with the Bicycle Advisory Committee, should review each paving list and work with the City's Public Works Department to assign space for bicyclists before these projects are finalized.

Well-maintained signs and pavement markings help improve safety and usability of bicycle infrastructure investments. Photo: Midtown Greenway, in Minneapolis.

Signs and pavement markings

Signs and pavement markings are important features of bikeways and roadways, and help ensure continued safe and convenient use of these facilities. It is critical that bikeway signs, striping, and legends be kept in a readable condition.

Some recommendations to address these infrastructure elements include:

- Regular inspection of bikeway signs and legends, including an inventory of signs to account for missing or damaged signs
- Replacement of defective or obsolete signs as soon as possible
- Regular inspection of striping, and prompt reapplication as needed. In some cases, striping may be visible, but has lost its slip resistance, which can be a hazard to bicyclists.
- Depending on wear, bike lanes may need to be repainted on an annual basis. Bike lane stripes may wear out less often on lower traffic volume streets than on higher volume streets
- Cold plastic should be used for skip-striping bike lanes across right turn lanes
- Promptly respond to maintenance requests for lane striping and markings as directed through the Bicycle Facility Maintenance Request Program

Unsafe grate on Gleason Road near Creek Valley Elementary School. This type of grate can trap a bicycle's tires, abruptly stopping the bike and throwing a cyclist over the handlebars.

Vegetation

Vegetation encroaching into and under the bikeway creates a nuisance and a hazard for riders. Current practice requires property owners in Edina to ensure their trees and shrubs do not cause safety problems. Violations can be reported through the Bicycle Facility Maintenance Request Program. Tree roots causing premature break-up of surfaces should be similarly reported.

Drainage issues

Drainage facilities may change grades and deteriorate over time. Ensuring that bicycle-safe drainage grates are located at the proper height greatly improves cyclist safety; it may sometimes be necessary to adjust or replace catch basins to ensure continued

safe operations and improve drainage. The small asphalt dams that are sometimes constructed on roadway shoulders to divert storm water into catch basins are a hazard to cyclists.

Event-related drainage issues (e.g. backed-up grates) and long-term drainage hazards (unsafe grates) can be reported and addressed through the Bicycle Facility Maintenance Request Program, and should be proactively addressed whenever street improvements are made.

Three and a half inch drop to catchbasin along a comfortable riding shoulder on Blake Road. A cyclist inadvertently riding into the grate will likely lose control of their bicycle and suffer a crash.

Other Maintenance Activities

Chip Sealing

Chip seals should not be used to resurface shoulders, as they leave a rough surface and render this area unusable by most cyclists. Sometimes chip seals are applied over the automobile travel lanes and part of the shoulder area, which leaves a ragged edge or ridge in the shoulder, with material of different height and texture, and creates a hazard for cyclists.

Patching Activities

Loose asphalt materials from patching operations often end up on the shoulder, where the larger particles adhere to the existing surfacing, creating a very rough surface. Fresh loose materials should be swept off the road before they have a chance to adhere to the pavement.

Utility Cuts

Utility cuts can leave a rough surface for cyclists if not back-filled with care. Cuts should be backfilled and compacted so that the cut will be flush with the existing surface when completed. Extra care should be used when cuts are made parallel to bicycle traffic to avoid a ridge or groove in the bicycle wheel track.

Drainage grate along the path of cyclists on the York Avenue bike and pedestrian tunnel. The grate frequently clogs and accumulates dirt and debris. During winter, it fills with melt and ice. This tunnel is recommended for replacement.

For additional guidance

The recommendations listed in this chapter are meant to provide general guidance for maintenance and operation of Edina's bicycle network. For additional guidance and information please consult Chapter 9 (Maintenance) of the Minnesota Department of Transportation Bikeway Facility Design Manual.

Section III
Implementation

This section includes recommendations on implementation priorities, tools to measure success, and mechanisms to ensure ongoing improvement of Edina bicycle facilities.

In this section:

3.1 Benchmarks: What does success look like?

Establishing benchmarks for implementation will help measure whether progress in developing Edina's bicycle infrastructure is being made and help direct efforts to areas that need increased attention.

Two types of benchmarks are recommended for consideration: implementation benchmarks (which focus on how much of the recommended bicycle network is actually developed from year to year) and ridership benchmarks (how many riders does Edina's bicycle network attract). It is important that the goals indicating satisfactory progress not be set so high that success is unattainable nor so low that no meaningful change is required to declare improvement.

A number of benchmark measurements are provided for consideration below; these are meant to be used in concert with the timelines for implementation provided in Chapter 3.3.

An Edina cyclist riding along Wooddale Avenue today.

Implementation Benchmarks

Given that Edina's bicycle network does not at present contain many elements, realistic goals should be established to determine progress towards improving the physical condition and provision of Edina's bicycle infrastructure. An important component of addressing improvement will be the implementation and functioning of the City's Bicycle Facility Maintenance Request Program, which will be especially helpful in decreasing current hazards in Edina's system.

How much will improvements cost?
A tool to help estimate costs for implementation is provided in Appendix A.8 of this Plan.

Removing hazards

Within one year

- All unsafe drainage grates are removed from Edina's streets
- All unsafe shoulder, curb and grate conditions (grates more than a quarter inch below adjacent pavement, deteriorated shoulders, or degraded curb-pavement joints) on designated Primary routes are repaired

Within two years

- All unsafe shoulder and gutter conditions on designated Secondary routes are repaired

Increasing safety and convenience

Within one year

- Existing loop detectors along designated Primary routes where they cross multi-lane roads are tuned to better detect cyclists

Within three years

- New bike loop detectors are installed along designated Primary routes where they cross multi-lane roads and where existing detectors could not be modified to detect cyclists
- Blue bike lanes are installed at all recommended locations along designated Primary routes

Designating automobile space

- On streets that are designated Primary routes, stripe the "fog line" (right edge of automobile travel lane) at 10 or 10.5 ft width depending on conditions. Goal is to stripe a minimum of 10% of total road miles per year.

Developing bike facilities

Within one year

- Install bike route signs including distance, direction and destination information on all Primary bike routes (except for those streets, like 77th Street, that currently present other issues that must be addressed first before they are comfortable for cycling)

Within two years

- Install bike route dots along designated Primary and Secondary routes in Edina
- Complete striping bike lanes on designated Primary streets

Improving bicycle parking

Within one year

- Bicycle parking facilities are provided in all Edina public schools and parks

Within two years

- Adequate number and type of bicycle parking facilities are provided at all major Edina commercial and retail destinations, including 70th and Cahill, 50th and Vernon, and others

Within three years

- All Edina public schools and parks have bicycle parking facilities of a recommended type ("inverted U" or "post and loop")
- The number of bicycle parking facilities provided at Edina public schools and parks meet the recommended guidelines specified in Appendix A.4
- All transit stops in Edina include parking space for at least two bicycles

Ridership Benchmarks

Baseline ridership levels help determine changes or improvements in the use of bicycle facilities. Although not much information on existing bicycle ridership levels in Edina is currently available, a preliminary benchmark base level can be established using the recently completed Edina bike counts taken in September 2007.

These counts, part of a larger, coordinated base level bike count effort led by Transit for Livable Communities, were the first time that bicycle counts were conducted in Edina simultaneously with counts throughout our region. Counts were conducted by BETF volunteers at two locations, from 4:00 to 6:00 p.m., over two days. In that time period an average of 21 bikers and 35 pedestrians were counted at 44th Street and Brookside Avenue while 17 bikers and 14 pedestrians were counted at 70th Street and Cahill Road. These numbers can be carried forward as cycling baselines at those locations, and can be used to ascertain progress in subsequent years. It is recommended that bike counts be conducted annually at additional locations; it is also recommended that the City's Bicycle Coordinator (recommended in Chapter 3.2) manage the program and coordinate it with wider regional efforts.

A yearly growth of 10% in the number of riders at each location (and at new ones as this data collection effort expands) will indicate satisfactory progress for this Plan.

Moving Forward

New benchmarks should be set up as this Plan is adopted and implemented, as experience guides new directions and issues relevant for implementing the vision behind this Plan. It is recommended that this Plan and its benchmarks and recommendations be revisited within three years of adoption.

3.2 Bicycle Coordinator

This Plan recommends the creation and funding of a new "Bicycle Coordinator" position within the City of Edina to coordinate implementation of the Plan, to attend to and coordinate response to bicycle network maintenance and operations issues, and to advocate for the needs of cyclists as other transportation and land use projects are designed and implemented.

The position need not be full time, but should be permanently funded and allow a new or existing staff person to dedicate a minimum of 10 hours per week to bicycle-related issues within and around the geographic area of Edina.

Tasks and responsibilities would at minimum include:

Planning

- Coordinate and integrate bicycle planning and network implementation with other city, county, regional parks district and state programs, agencies and bodies
- Review all roadway and land use plans for impact on bicycle travel and conditions; make and pursue recommendations for improvement as needed before projects are constructed
- Review traffic-calming and other roadway measures for impact on conditions for cyclists
- Coordinate implementation of route recommendations as part of other projects (for example recommending that bicycle-friendly curb-and-gutter is specified in street reconstruction projects)
- Represent the interests of Edina cyclists by serving as liaison with adjoining jurisdictions and regional entities during design and implementation of their respective local and regional bicycle and other transportation infrastructure
- Provide advice to policymakers, including members of the Edina City Council and the Edina Transportation Commission, on transportation and land use issues with the aim of improving conditions for cyclists in Edina
- Coordinate bicycle-related transit infrastructure improvements, including provision of bike parking at key transit locations and coordinating improvements to bike parking and potential development of a bike station at Southdale Mall as part of its operation as a Transit Center

Citizen stewardship

Ultimately, the purpose of improvements to Edina's bicycle infrastructure is to bring benefits to its citizens. It is therefore critical that a structure for citizen stewardship of this Plan be devised and implemented.

This Plan recommends the following two components of a citizen guidance and stewardship mechanism for improving Edina's bicycle infrastructure:

1. *Establish a Bicycle Advisory Committee*
   Many cities that are successfully implementing improvements to their bicycle infrastructure owe a great deal of their success to the role that citizen-activists have played in guiding implementation of their bicycle plans and ensuring the ongoing improvement of existing facilities. A Bicycle Advisory Committee typically includes representation from interested members of the public and participation from city engineering, public works and/or planning staff so that relevant issues can be promptly discussed and addressed. Edina's Bicycle Advisory Committee would provide citizen direction for implementation of Plan recommendations and provide additional guidance for improving Edina's bicycle transportation network as needed.

2. *Formally include cyclist representation in transportation decision-making*
   The Edina Transportation Commission advises the City of Edina on issues relating to transportation and transportation improvements over its surface street network. Formally including at least one representative from the Edina Bicycle Advisory Committee as a full member of the Edina Transportation Commission would help ensure that the voice of cyclists is included during deliberations on improvements to Edina's transportation network.

Maintenance and operations

- Create and administer a spot improvement / Bicycle Facility Maintenance Request program to reduce roadway hazards and to quickly respond to cyclists' requests for maintenance or repair of bicycle infrastructure

Public engagement

- Serve as City of Edina liaison to the Bicycle Advisory Committee and other Edina citizens' groups working on improving conditions for cycling in the City

Education and encouragement

- Provide information and conduct workshops to improve cycling safety, including coordinating with Edina schools to include bicycle education as part of their physical education programs, and coordinating community requests for training for adults
- Coordinate preparation and publication of Edina bike network maps

Measurement

- Collect and maintain bicycle use data, including regularly monitored bicycle counts, studies of origins and destinations, accident information and infraction data
- Develop yearly reports detailing use of bicycle facility network, identifying focus areas for improvement

Fundraising

- Pursue local, state, federal and private funds for improving bicycle infrastructure, for encouraging greater use of Edina bicycle network assets, and for conducting education and encouragement campaigns

3.3 Tasks and timeline

This Plan articulates a vision for improving bicycle conditions and infrastructure within the City of Edina. This chapter presents a simplified timeline prioritizing recommended improvements over the short, medium and long-term.

In general, low-cost improvements are recommended for the short term, while more expensive and involved initiatives are recommended for the future. Where relatively expensive improvements are recommended over the short-term it is in recognition that quickly addressing some issues may lead to lasting and important gains in others - for example, quickly addressing the lack of adequate bicycle parking in Edina schools and parks will make it easier for children and families to bike to those locations and maybe begin biking to others too.

A listing of organizations, public officials and government agencies whose involvement would be needed for implementing each of the recommended steps is also included in the timeline.

Many important conversations between citizen organizations, public officials, funders and other partners will have to take place before all the resources are in place to make the changes listed in this Plan. Convening a Bicycle Advisory Committee, or a Plan Implementation Working Group or Task Force, will be a helpful first step in coordinating the various conversations and commitments that implementing this Plan will require.

Phasing of improvements for individual recommended routes or segments is included in Chapter 2.4, where description of potential short, medium, and long-term improvements are given for each.

Edina citizens are interested in seeing improvements to the City's bicycle infrastructure.
Photo: At the 2008 Comprehensive Plan public meetings held in August 2007.

How much will improvements cost?

A tool to help estimate costs for implementation is provided in Appendix A.8 of this Plan.

What is the timeframe recommended?

The timelines in this chapter describe improvements in the following timeframes:

- Short-term is between now and two years from now
- Medium-term is between two and four years into the future
- Long-term is between four and seven years from now

For the short term

The following steps are recommended for implementation between now and the next two years:

Short term: what to do	Why	Who
Appoint a Bicycle Advisory Committee	To ensure continued citizen guidance and involvement in the improvement of Edina's bicycle infrastructure	• Edina City Council • Bike Edina Task Force
Cycling community representative on the Edina Transportation Commission	To include the voice of Edina's cycling community in the discussions shaping transportation in the city	• Edina Transportation Commission • Edina City Council • Bicycle Advisory Committee
Create position and hire bicycle coordinator	Dedicated staff time for attending to cycling and Plan-related issues in the city	• Edina City Council • Bicycle Advisory Committee • City of Edina Planning Department • City of Edina Engineer
Adopt a "Complete Streets" policy for street design and improvements within Edina	To ensure that all Edina streets meet the needs of cyclists, pedestrians and motorists	• Edina City Council • Edina Transportation Commission • City of Edina Planning Department • City of Edina Engineering and Public Works Department
Improve bicycle parking facilities at Edina public schools	To support and encourage active transportation for Edina's student population	• Edina Public Schools • City of Edina Bicycle Coordinator • Edina Transportation Commission • Edina Community Health Committee • Blue Cross and Blue Shield of Minnesota • Transit for Livable Communities Non-Motorized Transportation Pilot Program
Improve bicycle parking facilities at City of Edina parks and recreation facilities	• To increase convenience for Edina children and families • To support and encourage active transportation for Edina's population	• Edina Parks and Recreation System • City of Edina Bicycle Coordinator • Edina Transportation Commission • Edina Community Health Committee • Blue Cross and Blue Shield of Minnesota • Transit for Livable Communities Non-Motorized Transportation Pilot Program

Short term: what to do	Why	Who
Adopt the recommended bicycle parking provision guidelines (Appendix A.3) into Edina's Code of Zoning Ordinances	To ensure that all future development includes adequate bicycle parking provision	• Edina City Council • Edina Transportation Commission • Edina Planning Commission
Set up Bicycle Facility Maintenance Request Program (as described in Chapter 2.10)	To protect and improve Edina's cycling infrastructure investments	• City of Edina Bicycle Coordinator • Bicycle Advisory Committee
Create plan and set up implementation steps for annual bicycle counts	To measure changes in bicycle ridership in Edina resulting from investments in the city's network	• City of Edina Bicycle Coordinator • Bicycle Advisory Committee
Set up an ongoing assessment and implementation strategy for evaluating progress and prioritization of specific route treatments recommended by this Plan	• To focus energy and resources • To ensure implementation moves forward	
Improve bike parking at commercial nodes and employment centers	To encourage more commuting and shopping trips to be made by bicycle	• Edina City Council • Edina Transportation Commission • Bicycle Advisory Committee • Edina Bicycle Coordinator • Individual businesses and employers
Install Bike Route signs over all designated Primary routes	To mark routes and guide cyclists through Edina's bicycle transportation network	• City of Edina Engineering and Public Works Department • Bicycle Advisory Committee • Edina Transportation Commission • Edina Bicycle Coordinator
Install route dots at recommended locations over Edina's Primary and Secondary route network	To mark routes and guide cyclists through Edina's bicycle transportation network	• City of Edina Engineering and Public Works Department • Bicycle Advisory Committee • Edina Transportation Commission • Edina Bicycle Coordinator
Prepare and distribute bicycle network maps	• To encourage use of the network by existing and potential cyclists • To help riders find their way around town	• Bicycle Advisory Committee • Edina Bicycle Coordinator • Edina bicycle shops
Set up bike-related maintenance programs, including winter-time provision for snow and ice removal, and year-round sweeping, surface repairs and resurfacing for Edina's bicycle network	• To protect Edina's bicycle transportation network investments • To encourage cycling by providing a well-maintained cycling infrastructure	• City of Edina Engineering and Public Works Department • Edina City Council • Edina Bicycle Coordinator • Bicycle Advisory Committee
Implement incentive programs to encourage cycling to Southdale Mall and the Southdale Transit Center	• To encourage and increase cycling in Edina • To decrease demand on the Edina's automobile transportation network • To increase the proportion of trips made by transit in Edina	• MetroTransit • Southdale Mall management • Edina Bicycle Coordinator • Bicycle Advisory Committee

Short term: what to do	Why	Who
Improve bicycle parking at transit stops	To increase use and convenience of riding a bicycle to transit	• MetroTransit • Bicycle Advisory Committee • Edina Transportation Commission • Edina Bicycle Coordinator • Transit for Livable Communities Non-Motorized Transportation Pilot Program
Adjust existing loop detectors to detect bicycles, especially in areas where designated Primary routes cross multi-lane roads	• To increase cyclist safety and reduce hazardous conditions • To make traffic signals more effective for non-motorized vehicles	• City of Edina Engineering and Public Works Department • Bicycle Advisory Committee • Edina Bicycle Coordinator
Add bicycle pavement markings to existing loop detectors	• To increase cyclist safety and reduce hazardous conditions • To make traffic signals more effective for non-motorized vehicles	• City of Edina Engineering and Public Works Department • Bicycle Advisory Committee • Edina Bicycle Coordinator
Install bike lanes over designated Primary routes of Edina's bicycle transportation network	• To increase cyclist safety and comfort • To alert motorists to the presence of bicycles • To encourage use of bicycling as an important transportation option	• City of Edina Engineering and Public Works Department • Bicycle Advisory Committee • Edina City Council • Edina Transportation Commission • Edina Bicycle Coordinator • Blue Cross and Blue Shield of Minnesota • Transit for Livable Communities Non-Motorized Transportation Pilot Program
Install blue bike lanes at recommended locations over Edina's Primary route network	• To alert motorists to the presence of bicycles on designated lanes and to direct them to yield to bikes • To increase cyclist safety and reduce hazardous conditions	• City of Edina Engineering and Public Works Department • Bicycle Advisory Committee • Edina City Council • Edina Transportation Commission • Edina Bicycle Coordinator

For the medium term

The following steps are recommended for implementation over the next two to four years:

Medium term: what to do	Why	Who
Set up bicycle safety training, education and encouragement programs in Edina schools	To encourage safe cycling for Edina students	• Edina public schools • Individual private schools • Edina Bicycle Coordinator • Bicycle Advisory Committee • Transit for Livable Communities Non-Motorized Transportation Pilot Program
Set up recurring bike-related community events	To highlight and encourage cycling	• Bicycle Advisory Committee • Edina Bicycle Coordinator • Civic organizations • Edina Parks and Recreation Department
Work to establish visitor bicycling programs	To encourage cycling by visitors to Edina	• Bicycle Advisory Committee • Edina Bicycle Coordinator • Edina Parks and Recreation Department • Edina and nearby hotels • Edina Business Associations
Set up rider incentives and TDM (Transportation Demand Management) programs for visitors and shoppers who arrive by bike	• To encourage and increase cycling in Edina • To decrease demand on the City's automobile transportation network	• Edina Business Associations • Edina employers • Bicycle Advisory Committee • Edina Bicycle Coordinator
Work with Southdale Mall management to implement improvements to Southdale's internal cycling network	To help cyclists to more comfortably access and use an important regional destination	• Southdale Mall management • Bicycle Advisory Committee • Edina Transportation Commission • Edina Bicycle Coordinator • MetroTransit
Install bicycle loop detectors at locations where designated Primary routes cross multi-lane roads and where tuning of existing loop detectors does not yield satisfactory results for cyclists	• To increase cyclist safety and reduce hazardous conditions • To make traffic signals more effective for non-motorized vehicles	• City of Edina Engineering and Public Works Department • Bicycle Advisory Committee • Edina City Council • Edina Transportation Commission • Edina Bicycle Coordinator • Transit for Livable Communities Non-Motorized Transportation Pilot Program
Develop the Regional Canadian Pacific Trail	To provide regional connections, encourage cycling and provide convenient transportation and recreation options for Edina's citizens	• Bicycle Advisory Committee • Edina City Council • Edina Bicycle Coordinator • Three Rivers Park District • Transit for Livable Communities Non-Motorized Transportation Pilot Program • City of Edina Engineering and Public Works Department

Medium term: what to do	Why	Who
Develop the Nine Mile Creek Regional Trail	To provide regional connections, encourage cycling and provide convenient transportation and recreation options for Edina's citizens	• Three Rivers Park District • Bicycle Advisory Committee • Edina City Council • Edina Bicycle Coordinator • Transit for Livable Communities Non-Motorized Transportation Pilot Program • City of Edina Engineering and Public Works Department
Advocate for the integration and inclusion of bicycle transportation as part of potential development of the Vernon and Eden Avenue Park and Ride	• To encourage and increase cycling in Edina • To decrease demand on the City's automobile transportation network and meet TDM objectives	• City of Edina Engineering and Public Works Department • Metro Transit • Bicycle Advisory Committee • Edina City Council • Edina Transportation Commission • Edina Bicycle Coordinator

For the long term

The following steps are recommended for implementation over the next four to seven years:

Long term: what to do	Why	Who
Install bicycle signal heads at recommended locations over Edina's designated Primary route network	• To decrease potential conflicts between cyclists and motorists • To alert motorists to the presence of bicycles on designated lanes and to direct them to yield to bikes • To increase cyclist safety and reduce hazardous conditions	• City of Edina Engineering and Public Works Department • Bicycle Advisory Committee • Edina City Council • Edina Transportation Commission • Edina Bicycle Coordinator • Transit for Livable Communities Non-Motorized Transportation Pilot Program
Develop Bike Station at Southdale Mall	• To encourage and increase cycling in Edina • To decrease demand on the Edina's automobile transportation network • To increase the proportion of trips made by transit in Edina	• Southdale Mall management • MetroTransit • Edina City Council • Edina Transportation Commission • Bicycle Advisory Committee • Edina Bicycle Coordinator • City of Edina Engineering and Public Works Department • Individual businesses and employers • Transit for Livable Communities Non-Motorized Transportation Pilot Program

Section IV
Appendix

This section includes some additional resources that may be helpful for the work of this Plan.

In this section:

A.1 City of Edina 2008 Comprehensive Plan Objectives

1. Maintain strong residential neighborhoods
2. Provide a level of City services that sets Edina apart from other communities
3. Provide capital investments that balance need and affordability
4. Develop and maintain a coordinated and balanced transportation system that provides a variety of choices among transportation modes
5. Take an active role in redevelopment strategies to create places of enduring quality and character
6. Support Edina Public Schools in maintaining an exemplary public education system for the community
7. Evaluate and efficiently employ technological advancements to provide City services
8. Continually update and refine Vision 20/20
9. Improve community health and fitness
10. Maintain a quality, sustainable environment

A.2 The MetCouncil's 2030 Transportation Policy Plan

The following policies are part of the Metropolitan Council's 2030 Transportation Policy Plan. The section excerpted below deals directly with bicycle mobility.

Policy 15: Develop and Maintain Efficient Pedestrian and Bicycle Travel Systems

Safe, high-quality, continuous, barrier-free pedestrian and bicycle facilities must be developed, maintained and improved to function as an integral part of the region's transportation system. Compact, mixed-use development with facilities for pedestrians and bicyclists helps reduce short automobile trips. Over the last 10 to 15 years, the region has made an effort to direct a higher level of transportation investments to special facilities for pedestrians and bicyclists, either as freestanding projects or as part of larger transportation projects. As the region promotes the development of mixed-use centers, providing facilities for these non-motorized modes becomes an increasingly important component of planning at the city, county and regional level. As recognized in the federal surface transportation law, well-developed pedestrian and bicycle systems help promote energy conservation, reduce the pressure on the highway system, and preserve the environment. In addition, recent research indicates that residents of places designed with accommodations for bicyclists and pedestrians are more active and therefore healthier than residents of other areas.

Strategy 15a: Funding Priorities for Pedestrian and Bicycle Projects

Funding priority will be given to bicycle and pedestrian projects that:

- Serve the greatest number of likely users, especially commuters;
- Support compact and mixed-use development;
- Serve a valid transportation need or purpose;
- Provide safety and security for users, or help educate residents regarding bicycle and pedestrian safety;
- Are cost-effective;
- Are integrated with other transportation modes;
- Provide a direct connection to a multi-modal transfer facility;
- Link schools, office, commercial, industrial, recreational and residential destinations; and
- Fill gaps in or add continuous segments to the regional bicycle and pedestrian systems.

Projects must be included in or consistent with the policies of a comprehensive plan or an official agency capital improvement program in order to receive federal funding (see Strategy 20c).

Strategy 15b: Pedestrian and Bicyclist Linkages to Transit

Linking pedestrian and bicycle facilities to transit is important to developing a multi-modal transportation system for the region. The Council installs bike racks on all buses. This allows travelers to use their bicycle at either end of a transit trip in order to reach their destination. Good sidewalk access and on-street bike lanes in the vicinity of bus stops and transitway stations can encourage travelers to use transit. Heated bus shelters, marked crosswalks, bike racks and lockers, and other facilities for pedestrians and bicyclists will be provided at park-and-ride lots, transit hubs and at major destination centers throughout the region, including the downtowns. To encourage a strong intermodal link, the operating policy for all transit modes, including LRT and commuter rail, will be to allow bicycles on board, and bicycle racks and lockers will be located at transitway stations. Bicycle and walking paths to the stations and on-site bike storage are important components to consider in station design in order to achieve strong connections with the community and create a quality bicycle/pedestrian environment around the stations.

Strategy 15c: Pedestrian and Bicycle Elements of Local Comprehensive Plans
No pedestrian or bicycle project will be funded through regional transportation project selection processes unless included in or consistent with the policies of a state or regional plan, a city or county comprehensive plan found to be consistent with Council plans, or an adopted capital improvement program.

Pedestrian and bicycle elements of local comprehensive plans shall:

- Promote safety of pedestrians and bicyclists;
- Provide connections to adjacent (local and county) jurisdictions and their walkway and bikeway systems;
- Fill gaps and remove barriers in the existing local, county or regional walkway/bikeway systems;
- Design and locate walkways and bikeways to serve both travel and leisure purposes;
- Provide pedestrian and bicycle facilities to and within high activity nodes, especially commercial and transit centers; and
- Include programs for educating motorists, pedestrians and bicyclists to increase awareness of and respect for the rights and responsibilities of all three types of travelers.

Strategy 15d: Coordinated Planning Among Local Jurisdictions
Local, county, regional and state agencies will coordinate planning efforts to develop efficient and continuous pedestrian and bikeway systems, eliminate critical gaps and ensure adequate interjurisdictional connections and signage. The Council publishes a Regional Parks Map that shows the state and regional off-road trails in the metropolitan area, and state, regional and local agencies are nearing completion of a metropolitan bikeway map. Cities and counties can use these maps as starting points to develop integrated metro wide walkway and bikeway systems.

Strategy 15e: Pedestrian and Bikeway Improvements to Roadways
When a principal or minor arterial road is constructed or reconstructed, off-road walkway designs and both on- and off-road bikeway designs should be considered, with special emphasis placed on safety and barrier removal. Bikeways and combined bicycle/pedestrian facilities shall meet MnDOT State Aid standards and AASHTO guidelines, and also consider Mn/DOT Bicycle Transportation Planning and Design Guidelines. Pedestrian facilities will be provided along roads when feasible, as many roads in the region currently do not have adjacent sidewalks or separated pedestrian paths. Bicycle facilities shall be provided within existing rights-of-way when feasible instead of acquiring exclusive new rights-of-way for these facilities. Every bridge that is newly constructed or reconstructed that removes or crosses a barrier for pedestrians and bicyclists must include a walkway and bikeway to allow these travelers safe access to the same regional resources as motorized vehicles unless a reasonable alternative exists within one quarter mile for pedestrians or one mile for bicyclists. When feasible, bicycle facilities should be separate from pedestrian facilities.

Strategy 15f: Pedestrian and Bicyclist Education
To maximize safe and pleasant pedestrian travel, the Council encourages educational promotions to increase awareness of and respect for the rights and responsibilities of pedestrians and bicyclists. Local, state and regional agencies should be encouraged to establish safety programs oriented toward educating the public in the proper use of sidewalks and crosswalks by pedestrians and of bicycle lanes and paths by bicyclists. Programs will also provide training in proper bicycling procedures such as making turns, stopping at stop signs and signals. In addition, programs will educate motorists regarding pedestrian roadway crossing laws, how to safely interact with bicyclists riding legally in the roadway, and generally to be aware of pedestrians and bicyclists. The Council also supports the implementation of Safe Routes to Schools programs at the local level and programs aimed at teaching children to walk and bike safely, including the use of proper equipment and helmets while bicycling.

A.3 Types of bicycle facilities

This section provides a brief summary of facilities, treatments and technologies that may be helpful in increasing Edina's bicycle orientation. Some of the treatments listed here were provided by Transit for Livable Communities (www.tlcminnesota.org) as potentially eligible for funding under Non-Motorized Transportation Pilot Program funds.

Advance box in Vancouver, British Columbia.

Advance boxes

Advance boxes allow cyclists to wait in front of motorists at red lights and enter the intersection first after the signal changes. Generally, they are well-marked by paint. Advance boxes are extensively used in Europe and have been piloted in several US cities including Davis, California. They are often accompanied by an exclusive bicycle signal (see Bicycle Signal Heads) that turns green a few seconds before the signal for motorists. Advance boxes work best in locations where well-used bike lanes or Bicycle Boulevards exist; where the street to be crossed is busier than the street with the advance boxes; and where a large number of the cyclists using the advance boxes will be turning left.

A bicycle boulevard.

Bicycle boulevards / Bicycle streets

Although bike boulevards or bicycle streets can be located anywhere, they are generally located on streets that parallel nearby arterial street where bike lanes are not feasible. To attract bicyclists who want to travel at a steady pace, bicycle boulevards must be properly designed and engineered. Typically, many stop signs are removed to give priority to bicycle movement. Other features of bicycle boulevards or bicycle streets include:

- Minimal delays at stoplights
- Restricted automobile access (aside from local traffic)
- Traffic calming measures to reduce motor vehicle speeds and through trips
- Special pavement markings denoting a bicycle boulevard
- Reduction of automobile speed limits to 25 miles per hour or lower

Bicycle signal heads

Bicycle signal heads are traffic lights that give cyclists a few seconds of a head start in passing through an intersection. They

are especially useful when used in conjunction with Advance Boxes, and are also recommended in places where a right turn lane for motorists crosses a bicycle side path. Right-turning vehicles receive a red arrow signal during the green phase for bicyclists.

Bike parking should be provided adjacent to principal building entrances.

Bicycle parking facilities

Lack of bicycle parking facilities is a significant barrier to bicycle use. Providing bike racks at locations like schools, shopping centers, workplaces, libraries, post offices, recreational areas, and other centers of activity will, at relatively low cost, help improve Edina's bicycle orientation.

Racks should be located in highly visible locations near the front entrance of an establishment and closer to the building than motor vehicle parking. Even if located on private property, they should remain available to the general public. A number of cities (including Palo Alto, California and Madison, Wisconsin) require that all new developments provide adequate bicycle parking and specify that the spaces "cannot be farther away than the closest car parking space."

Bike lanes

Bike lanes are on-street facilities at least 5 feet wide for each-way travel consistent with the flow of traffic and generally on the right side of the travel lane(s). As much width as possible should be provided for bike lanes; treatments, including the use of colors, can make lanes more easily noticed.

On-street bike lanes in Minneapolis.

On streets that are one-way for cars, consideration should be given to providing a contra-flow bike lane in addition to a bike lane going with traffic. Two-way bike lanes (not separated), although in current use in Minneapolis and other US cities, are inconsistent with AASHTO standards.

Bike lanes are generally marked with a painted line, although some bicycle lanes have physical barriers between motorized traffic and bicyclists.

Bike paths, Shared-use or Multi-use trails

Most bike paths are shared-use facilities that accommodate bicyclists, pedestrians, and skaters. These off-street facilities are often located along rivers, railroad corridors, utility easements,

and canals, or through parks and other open space. Bike paths and multi-use trails should safely allow for two-way travel with a minimum total width of 10 feet (12 feet when shared with pedestrians). Whenever possible, pedestrians should be separated from the bicyclists on bike paths and multiuse trails.

Two-way trails adjacent to urban streets (side paths) are not recommended due to the high number of intersections and driveway crossings. One-way on-street bike lanes for bicyclists and sidewalks for pedestrians should be used instead. If side paths are deemed the only suitable solution, one-way trails should be placed on both sides of the roadway for bike travel in the same direction as motorized traffic. Such trails should be a minimum of seven feet wide and well marked with one-way directional arrows. Two-way side paths are not recommended because of safety concerns.

View of the Midtown Greenway, a shared-use facility in Minneapolis.

Bike Routes

The term "bike route" may denote any corridor recommended for bicycle travel. For planning purposes, the term is limited to roads marked with bike route signs. There is no uniform or consistent methodology to determine which roads are suitable for such a designation. Bike route signs can help cyclists navigate gaps that exist in the bikeway network. In such situations, the signs should also include information directing cyclists to the nearest Bike Path or Bike Lane.

Bike Stations

Bike stations are facilities where people can park or rent bikes, get bikes fixed, obtain maps, and use shower and locker facilities. Most bike stations, especially in Europe, are connected to a train station or other major transit hub, allowing for convenient multi-modal travel. Full-service bike stations with sheltered parking for 3,000 or more bicycles can be found in Germany, Japan, Denmark, and the Netherlands.

Bike station in San Francisco adjacent to a BART (Bay Area Rapid Transit) station.

The possibility of providing a bike station at Southdale Mall is recommended elsewhere in this Plan. The City of Edina, Mall management, and the City's Bicycle Advisory Committee may wish to partner with nonprofit organizations and other civic groups to create a bike station there to serve the needs of shoppers, workers and transit riders who may use it as a bicycle "Park and Ride."

Bridges and overpasses

This Plan does not recommend construction of overpass or similar structures where a suitable at-grade (ground level) crossing is possible. Studies show that most pedestrians and bicyclists will avoid an overpass if an at-grade crossing is available. Overpasses and bridges cost far more to build, and take more time to use and demand more exertion from users. Techniques to reduce delays and increase the safety of non-motorists at major intersections should be fully explored before an overpass or underpass is considered.

The bridge carrying the Midtown Greenway over Hiawatha Avenue in Minneapolis.

Contra-flow bike lanes

Special lanes allowing bicyclists to travel in the opposite direction of motorists on one-way streets have been successfully piloted in Minneapolis and other cities. Since this is an innovative strategy in the US, lanes need to be well marked with warning signs at all side streets. Contra-flow lanes should be located on the side of the street that is consistent with normal two-way movement. To prevent wrong way riding within the contra-flow lane, a regular bike lane (on the opposite side of the street) should also be provided.

Contra-flow bike lanes in Madison, Wisconsin.

Diverters

Diverters are structures (including bollards, landscaped medians, or public art) that compel motor vehicles to turn right or left on a street where bicyclists and pedestrians are free to continue in the same direction. Street markings (preferably colored asphalt) should be used to help non-motorists safely cross a street and move through the diverters. This Traffic Calming approach is quite useful in creating Bicycle Boulevards.

Incentive programs

Incentive programs seek to encourage more people to walk and bike. City employees in Olympia, Washington, for example, receive $2 per day if they walk, bike, or use public transportation to get to work. In Arlington, Virginia, city employees who ride or walk to work at least three times a week receive an extra $35 per month. The City of Westerville, Ohio, provides employees with an extra 15 minutes of vacation time for each day they bike or walk to work (one day of vacation roughly every six weeks for full-time bikers and walkers). These cities say that the incentives pay for themselves through savings in parking costs, health

benefits, and increased productivity at work.

Cycle track in Esslingen, Germany.

Median Islands

Medians can become a refuge for pedestrians and bicyclists trying to cross a busy roadway. With a safe haven in the middle of the street, bicyclists and pedestrians only need to negotiate half of the motor traffic at a time. A 10 foot wide median is the minimum recommended to accommodate cyclists pulling trailers.

Mid-block Crossings

Mid-block crossings are often safer than intersection crossings because they are free of vehicle turning movements. These crossings are especially useful in areas with high levels of jaywalking, since they provide clear places to cross the street at often-jaywalked locations. Marked mid-block crosswalks should be accompanied by signs and/or special signals to ensure motorist compliance and pedestrian safety. Mid-block crossings (and trail crossings) on roads with more than two lanes should always be signalized or provided with medians or refuge islands.

Multiple Lane Conversion/Reduction Projects

Typical four-lane streets can be converted to three lanes with negligible impact on the level of service for motorists. Four to three lane conversions provide a single lane for each direction of travel, but allow for left turns from the center lane. These conversions typically free up enough space for Bike Lanes to be added on both sides of the street and to improve conditions for pedestrians. There is also considerable potential for six to five lane conversions and, on many one-way streets, three to two lane conversions. Four to three lane conversions have been successfully used on major arterial roads with annual average daily traffic (AADT) greater than 25,000.

Raised Bike Lanes / Cycle Tracks

Also known as "cycle tracks," these on-street facilities are typically separated from motorized traffic by a parking lane. A rise roughly equal to half the usual curb height prevents cars in the parking lane from occupying any part of the bike lane. Raised bike lanes should be a minimum of eight feet to allow for riding two abreast and be built in one-way configurations on both sides of the street. In many ways, raised bicycle lanes provide the security of off-street bike lanes without the high costs for a separate right of way

and without the inherent safety problems at crossings.

Road Narrowing or Lane Narrowing

It's commonly assumed that Bike Lanes, wider sidewalks and other improvements for bicyclists and pedestrians will require wider roads and more right-of-way. Experience in Minnesota and elsewhere, however, shows that significant improvements can be made without widening the current roadway. By re-striping travel lanes or reducing the number of travel lanes (often called a "road diet"), pedestrian and bicyclist needs can be accommodated without widening the street.

Where traffic volumes allow, consideration should be given to reducing travel lanes from four to three lanes, using a center turn lane to allow space for bike lanes on both sides of the street. Reducing travel lane widths to 11 feet or lower (which in some cases require a variance from local, county or state officials), especially on streets with four or more lanes, can make room for bike lanes. Even if enough space for a regulation bike lane can't be made available, simply having a wider curb lane can significantly improve the cycling environment. Many U.S. cities (including Boulder, Portland, and Chicago) have reduced lane widths on urban arterials to 10 feet in order to add space for bicyclists.

Bike route sign in Portland, Oregon.

Signs

Distance/Destination signs, which provide information about distance to particular destinations, are an effective way to promote walking and biking and should be considered as part of any bikeway or walkway project.

Underpasses

Although this Plan elsewhere recommends replacement of the underpass under York Avenue, in general underpasses are not recommended where suitable at-grade crossings are feasible.

When underpasses are necessary, they should be designed and constructed in a way that allows maximum light to shine in, and the entrances should be clearly visible from the street level. These measures will reduce personal safety concerns. (See Bridges/Overpasses). Minimizing the slope will increase safety and convenience.

Underpasses should be designed to be well-lit, open and comfortable.

A.4 Recommended provision of bicycle parking spaces

The following table presents the minimum number of parking spaces recommended for land uses in Edina. Long-term spaces are defined as those used for a period longer than two hours. Please see Chapter 2.5 "Bicycle parking and other end of trip facilities" for additional information. Please note that installation of a single recommended "inverted U" bicycle rack provides 2 bicycle parking spaces.

Land use	Type	Total number of spaces required	Long-term parking	Short-term parking
Residential	Single and two family	None	-	-
	Multi-family apartments, townhomes, condominiums	1 long-term per unit, plus 4 minimum or 1 per every 10 units short-term	1 per unit	4 minimum or 1 per every 10 units
	Senior apartments / Retired adult centers	1 per every four units, plus 1 per every 10 units short-term	1 per every 4 units	4 minimum or 1 per every 10 units
Commercial	Hotel / motel	6 minimum or 1 per 15 rooms	60%	40%
	Office Restaurant Retail sales and service	1 per every 750 ft2 of floor area for first 15,000 ft2, plus 1 per every 1,500 ft2 of additional floor area	50	50
	Malls and shopping centers	1 per every 750 ft2 of leasable area for first 15,000 ft2, plus 1 per every 1,500 ft2 of additional leasable area	30	70
	Automobile parking facilities	10 minimum or 1 per every 20 automobile parking spaces	100	-
Industrial	Manufacturing	4 minimum or 1 per every 7,500 ft2 of floor area	100	-
	Warehousing	4 minimum or 1 per every 20,000 ft2 of floor area	100	-
Institutional	Transit hubs Park and Ride facilities	15 minimum or 1 per every 15 automobile parking spaces	80	20
	School staff (for all levels)	1 per every 10 employees (add this total to student bike parking provision for each school)	10	90
	Elementary schools	1 per every 10 students	-	100
	Middle schools	1 per every 8 students	-	100
	High schools	1 per every 8 students	-	100
	Libraries Museums Art Galleries	1 per every 300 ft2 floor area	20	80
	Churches and religious institutions	1 per 50 members	-	100
	Medical centers and hospitals	1 per every 1,500 ft2	75	25
Recreational	Community center	1 per every 240 ft2 of floor area	20	80
	Pools	1 per every 300 ft2 of surface area	20	80
	Gymnasium and spa	1 per every 240 ft2 of floor area	20	80

A.5 Bicycle parking facility design guidelines

Easily accessible, secure and convenient bicycle parking is a critical component of inviting people to make the choice to travel by bicycle.

Providing functional, visible and secure bicycle parking inexpensively and efficiently increases a building's parking capacity, serves those who use bicycles as a mode of transportation, and supports and encourages bicycle use.

Choosing appropriate components and layout for a bicycle parking facility will improving the conditions for bicyclig to a location.

"Hanger" bike racks in Iowa City, Iowa.

Bike parking components

Functional and convenient bike parking results from the proper design and combination of the following three elements:

- The design of the bike rack itself, which supports the bicycle
- The rack area, which may include several individual bike racks
- The location of the rack area, and its relationship to the building entrance it serves and the cyclists' approach to that entrance

Angled "post and loop" installation in Minneapolis minimizes space requirement for racks and maximizes usable pedestrian space.

The bike rack

The rack should support the bicycle upright by its frame in two places, enabling the frame and one or both wheels to be secured while preventing the bicycle from tipping over. Additionally, it should not require a cyclist to lift their bike to be able to lock it securely - a useful rack design should allow a cyclist to roll-in or back-in their bicycle to lock it.

Comb, toast, schoolyard, and other racks that provide no support for the bicycle frame are not recommended.

Two types of rack recommended by this Plan: the "inverted U" (left) and the "post and loop" (right).

The rack area

The rack area is the "bike parking lot" that the racks and the circulation needed to move in and out of the racks define.

To be functional and useful, certain minimum clearances and access rules should be observed:

- Individual racks should be located no closer than 30 inches to each other in order to allow sufficient space for easy entry and removal of bicycles on either side of the rack
- No rack element should be closer than 24 inches to a wall or other obstruction in order to allow full usability and easy access to perimeter racks
- Large rack areas, or rack areas with high turnover, should provide more than one entrance to ease circulation of cyclists and pedestrians
- Rack areas should preferably offer protection from rain and snow in order to ease loading and unloading of bikes and to keep bike saddles dry
- When multiple rows of bike racks are provided, the circulation space provided from the wheel of a bike on one row to the closest wheel of a bike on the next row should be a minimum of 48 inches

The "comb" bike racks found in many schools (including in Edina) are not recommended as they only secure a bike's wheel, from which the frame is easily detached.

Location of the rack area

One of the most important considerations in providing useful and functional bicycle parking is the location of the rack area in relation to the building it serves. Some guidelines for locating the rack area include:

- The recommended location for a bicycle parking area is immediately adjacent to the entrance it serves, preferably within 50 feet. It should be located as close as possible without blocking the entrance or inhibiting pedestrian movement to or from the building
- The rack area should be clearly visible from the entrance it serves and from the building's approach line
- Bike rack areas should be as close or closer than the nearest car parking space
- Buildings with multiple active entrances should include bike rack areas at each entrance
- Racks that are hard to find, are far from principal entrances or perceived to be unsafe will not be used by cyclists

Did you know?

A number of cities (including Palo Alto, California and Madison, Wisconsin) require that all new developments provide adequate bicycle parking and specify that the spaces "cannot be farther away than the closest car parking space."

"Wave" racks are not recommended because, as a result of their design, cyclists tend to use them as if they were a single "inverted U." This limits their actual capacity to two bikes regardless of the potential or stated capacity.

A.6 Bikeway facility design selection tool

Prepared by the Minnesota Department of Transportation and included in the March 2007 Mn/DOT Bikeway Facility Design Manual.

The Mn/DOT Bikeway Facility Design Manual is available at:
http://www.dot.state.mn.us/bike/bikewaysdesignmanual.html

Table 4-1: Bikeway Design Selection for Urban (Curb and Gutter) Cross Section – English Units

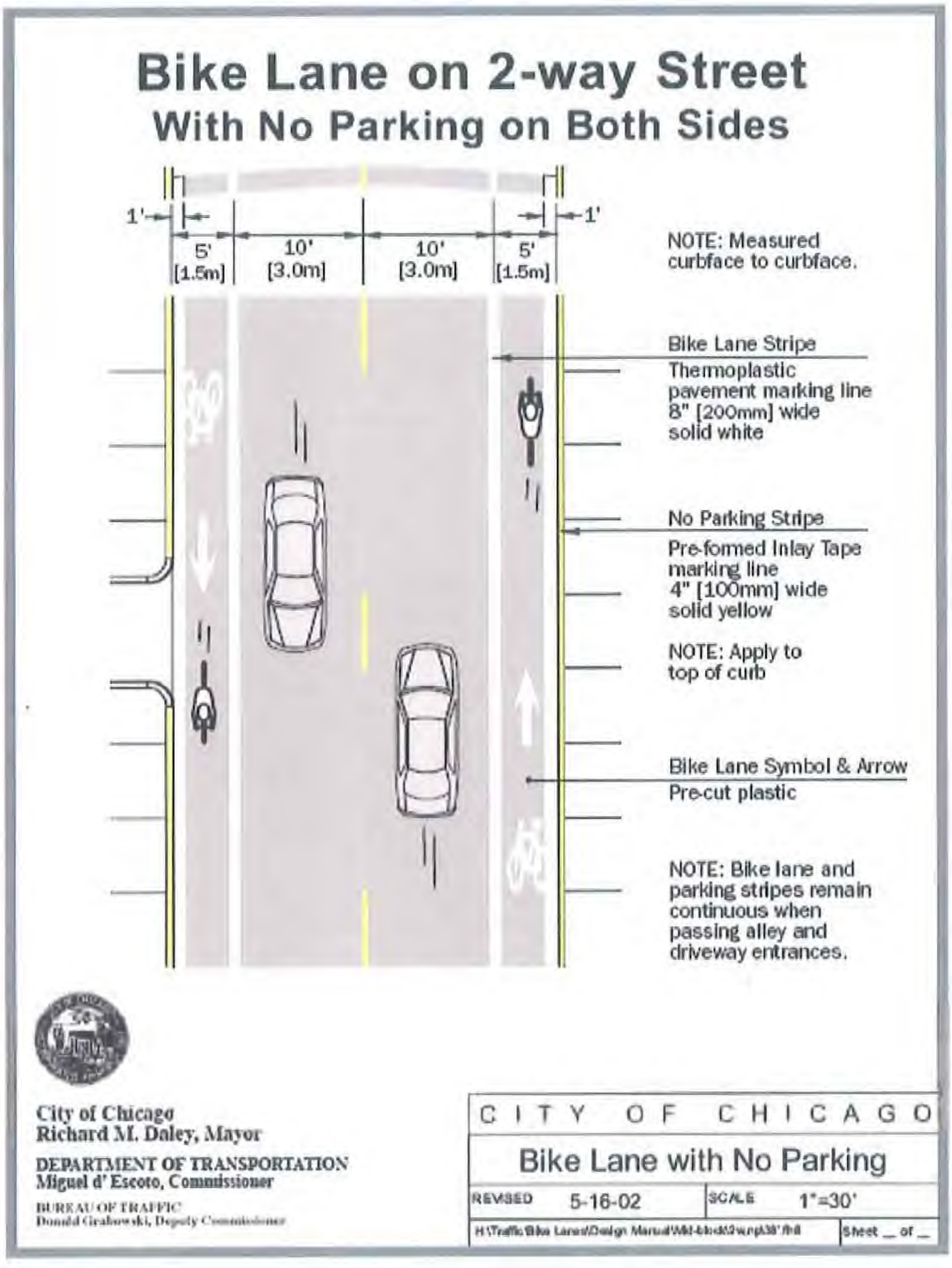
Motor Vehicle ADT (2 Lane)		<500	500-1,000	1,000-2,000	2,000-5,000	5,000-10,000	>10,000
Motor Vehicle ADT (4 Lane)		N/A	N/A	2,000-4,000	4,000-10,000	10,000-20,000	>20,000
Motor Vehicle Speed	25 mph	SL	WOL	WOL	WOL	BL = 5 ft	Not Applicable
	30 mph	SL with sign	WOL	BL = 5 ft	BL = 5 ft	BL = 6 ft	BL = 6 ft
	35 - 40 mph	WOL	BL = 5 ft	BL = 5 ft	BL = 6 ft	BL = 6 ft	BL = 6 ft or PS = 8 ft
	45 mph and greater	BL = 5 ft	BL = 5 ft	BL = 6 ft	BL = 6 ft	BL = 6 ft or PS = 8 ft	SUP or PS= 10 ft

BL = Bicycle Lane, SL = Shared Lane, WOL = Wide Outside Lane, SUP = Shared-Use Path, PS = Paved Shoulder

A.7 City of Chicago sample bicycle lane design

The City of Chicago has several years of experience providing on-street bike lanes on relatively narrow streets. A sample design for a 30 ft wide street, incorporating 10 ft wide automobile travel lanes and 5 ft wide bike lanes is included here.

A set of Chicago's standard bike lane designs can be downloaded from the City of Chicago's website at: http://egov.cityofchicago.org/webportal/COCWebPortal/COC_EDITORIAL/bike_lane.pdf



A.8 Estimating implementation costs

Following is a brief and simple list of estimated costs for implementing some of the items recommended in this Plan. Estimated costs are based on a database of national figures collected in 2002 and are inflation-adjusted for 2008 construction and localized to the Twin Cities region.

An online, interactive version of this estimating tool can be found at http://www.bicyclinginfo.org/bikecost/

Striping bicycle lanes

As recommended in Chapter 2.4:

Treatment description	Units	Cost ($ per unit)
Bicycle lane arrow	each	72
Bicycle symbol	each	96
Shared lane arrow ("sharrow")	each	96
Pavement striping	mile	4,400
Colored pavement	square foot	12

Signs, signals and wayfinding

As recommended in Chapter 2.7:

Treatment description	Units	Cost ($ per unit)
Sign (with post)	each	270
Loop detector	each	2,025
Bicycle signal	each	13,500

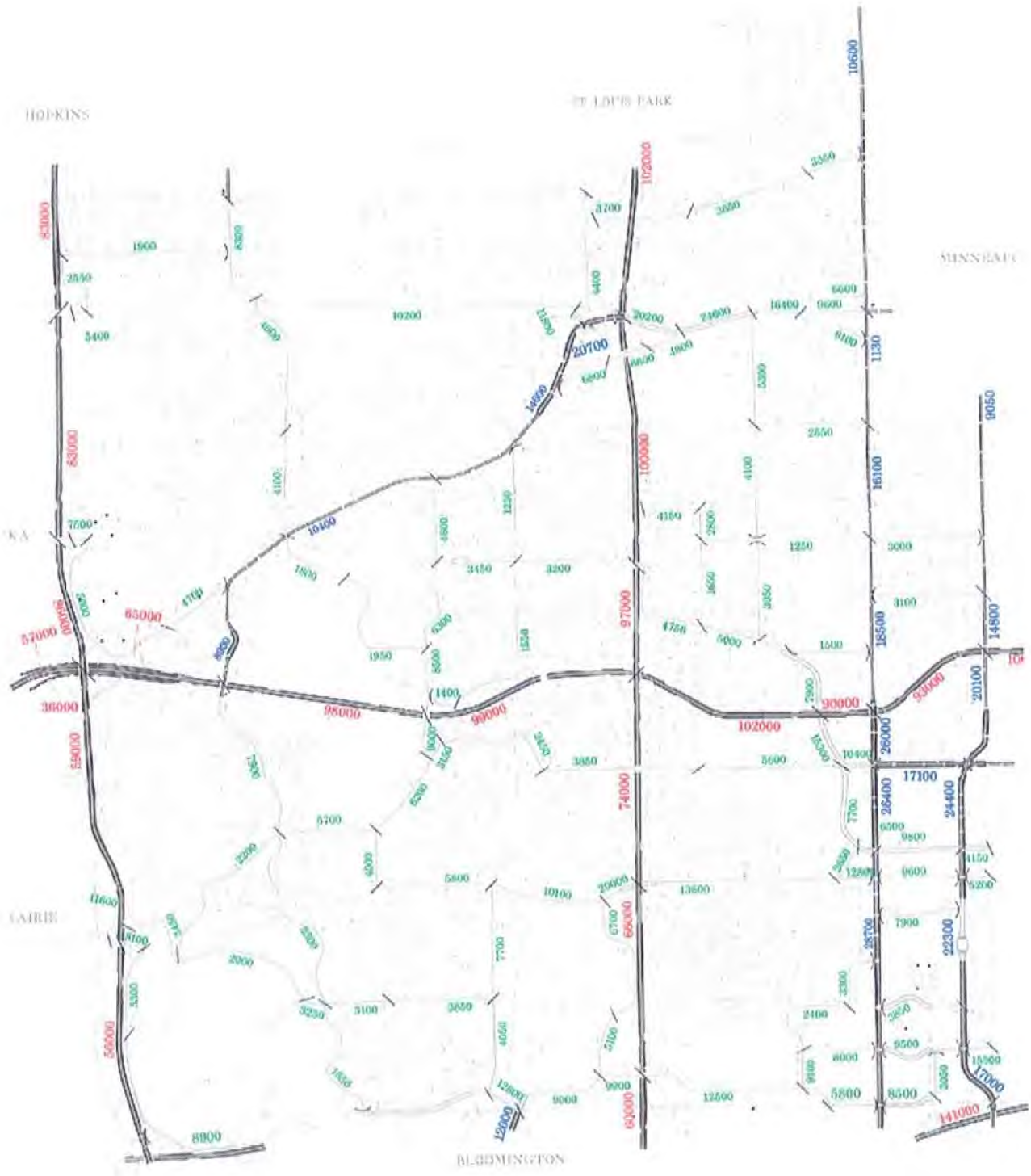
Bicycle parking facilities

As recommended in Chapter 2.6:

Treatment description	Units	Cost ($ per unit)
Parking rack (recommended "inverted U," provides 2 bike parking spaces, installed)	each	250
Bicycle locker (long-term bicycle parking, fits 2 bikes)	each	1,350
Bike station (does not include operational expenses)	each	250,000

A.9 Traffic volumes on Edina streets

A map showing 2005 Average Daily Trafic (ADT) volumes for Edina streets is provided below.



A.10 Rules of the Road for Minnesota cyclists

The following summary of Minnesota Bicycle Traffic Laws (M.S. 169.222) was provided by the Bike Edina Task Force (BETF). Sharing this information as part of education campaigns for children, seniors and other adults will help improve safety on Edina's streets.

1. Ride on the right with traffic; obey all traffic signs & signals; bicyclists have all rights/duties of any other vehicle driver. (subd. 1)

2. Legal lights and reflectors are required at night. (subd. 6a)

3. Arm signals required during last 100' prior to turning (unless arm is needed for control) and while stopped waiting to turn. (subd. 8)

4. Cyclists may ride two abreast on roadways as long as it does not impede normal & reasonable movement of traffic. (subd. 4c)

5. When passing a bicycle or pedestrian, motor vehicles shall leave at least 3 feet clearance until safely past the bicycle or pedestrian (169.18 subd. 3)

6. Ride as close as practicable to the right hand curb or edge of roadway except;
   a) When overtaking a vehicle
   b) When preparing for a left turn
   c) When necessary to avoid conditions that make it unsafe, e.g. fixed or moving objects, such as hazards, or narrow-width lanes. (subd. 4a)

7. Yield to pedestrians on sidewalks and in crosswalks; give audible signal when necessary before overtaking. (subd. 4d)

8. Riding on sidewalks within business districts is prohibited unless locally permitted. (subd. 4d)

9. It is illegal to hitch rides on other vehicles. (subd. 3)

10. Only one person on a bike unless it's equipped for more, or a

BikeEdina guide to Minnesota biking

Before every bike ride perform a Quick ABC

A - Check the Air pressure in the tires
B - Make sure the Brakes work
C - Check the Chain and gears are working
Quick - Make sure the Quick release levers are closed
Always wear your Helmet

legal baby seat is used. (subd. 2)

11. It is illegal to carry anything that prevents keeping one hand on handlebars or proper operation of brakes. (subd. 5)

12. Bicycle size must allow safe operation. Also, handlebars must not be above shoulder level. (subd. 6c & 6d)

13. Unless locally restricted, parking on the sidewalk is legal as long as it does not impede normal movement of pedestrian or other traffic. (subd. 9a)

14. Legal parking on a roadway, that does not obstruct legally parked motor vehicles, is allowed. (subd. 9b)

EDINA BICYCLE RESOURCES

- Bike Edina
  www.bikeedina.org
- Minnesota DOT Bicycle & Pedestrian
  www.dot.state.mn.us/bike.html
- State Bicycle Advisory Committee
  www.mnsbac.org
- Share the Road:
  www.sharetheroadmn.org